

From: Chan, Christina
Sent: Wednesday, November 14, 2001 6:05 PM
To: Landsman, Robert; STIC-Biotech/ChemLib
Subject: RE: rush 09/257,272

Please rush. Thanks Chris

-----Original Message-----

Fr m: Landsman, Robert
Sent: Wednesday, November 14, 2001 6:03 PM
To: Chan, Christina
Subject: rush 09/257,272

chris - can you rush this? its a transfered amended "2" which needs an oligo search. thanks. bob

COMMERCIAL DATABASES ONLY:

oligo search of at least 30 contiguous amino acids of SEQ ID NO:2

oligo search of at least 30 contiguous amino acids of SEQ ID NO:4

thanks

Robert Landsman, Ph.D.
Patent Examiner
U.S. Patent and Trademark Office
AU 1647
CM1 - 9D11
Mailbox - 10C01
Robert.Landsman@uspto.gov
703.306.3407

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TYPE OF SEARCH:
NA Sequences: _____
AA Sequences: 2
Structures: _____
Bibliographic: _____
Litigation: _____
Full text: _____
Patent Family: _____
Other: _____

VENDOR/COST(where applic.)
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OM protein - protein search, using sw model

Run on: November 15, 2001, 10:06:28 : Search time 34.67 Seconds
(Without alignments)
732.664 Million cell updates/sec

Title: US-09-257-272-2

Sequence: 1 MHSLSFFSVACSLAALLP.....SYSEVCRCPVSYMORPQMS 419

Scoring table: OLIGO
Gapop 60.0 , Gapext 60.0

Searched: 412676 seqs, 60623988 residues

Word size : 30

Total number of hits satisfying chosen parameters: 32

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Listing first 45 summaries

Database :

A_Geneseq_0601:*

- 1: /SIDSR/gcgdata/geneseq/geneseqp/AA1980.DAT:*
- 2: /SIDSR/gcgdata/geneseq/geneseqp/AA1981.DAT:*
- 3: /SIDSR/gcgdata/geneseq/geneseqp/AA1982.DAT:*
- 4: /SIDSR/gcgdata/geneseq/geneseqp/AA1983.DAT:*
- 5: /SIDSR/gcgdata/geneseq/geneseqp/AA1984.DAT:*
- 6: /SIDSR/gcgdata/geneseq/geneseqp/AA1985.DAT:*
- 7: /SIDSR/gcgdata/geneseq/geneseqp/AA1986.DAT:*
- 8: /SIDSR/gcgdata/geneseq/geneseqp/AA1987.DAT:*
- 9: /SIDSR/gcgdata/geneseq/geneseqp/AA1988.DAT:*
- 10: /SIDSR/gcgdata/geneseq/geneseqp/AA1989.DAT:*
- 11: /SIDSR/gcgdata/geneseq/geneseqp/AA1990.DAT:*
- 12: /SIDSR/gcgdata/geneseq/geneseqp/AA1991.DAT:*
- 13: /SIDSR/gcgdata/geneseq/geneseqp/AA1992.DAT:*
- 14: /SIDSR/gcgdata/geneseq/geneseqp/AA1993.DAT:*
- 15: /SIDSR/gcgdata/geneseq/geneseqp/AA1994.DAT:*
- 16: /SIDSR/gcgdata/geneseq/geneseqp/AA1995.DAT:*
- 17: /SIDSR/gcgdata/geneseq/geneseqp/AA1996.DAT:*
- 18: /SIDSR/gcgdata/geneseq/geneseqp/AA1997.DAT:*
- 19: /SIDSR/gcgdata/geneseq/geneseqp/AA1998.DAT:*
- 20: /SIDSR/gcgdata/geneseq/geneseqp/AA1999.DAT:*
- 21: /SIDSR/gcgdata/geneseq/geneseqp/AA2000.DAT:*
- 22: /SIDSR/gcgdata/geneseq/geneseqp/AA2001.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	419	100.0	419	20	AAV30518
2	419	100.0	419	20	AAV22320
3	419	100.0	419	21	AAV97144
4	419	100.0	419	22	AAV97570
5	410	97.9	419	18	AAW17837
6	410	97.9	419	18	AAW00932
7	410	97.9	419	19	AAW75740
8	410	97.9	419	20	AAW86203
9	410	97.9	419	21	AAW10648
10	410	97.9	419	21	AAW29048
11	410	97.9	419	21	AAW70749

12	410	97.9	419	21	AAV70982	Human vascular end
13	410	97.9	419	22	AAW37605	Human VEGF-C. Hom
14	393	93.8	399	20	AAW86237	Human VEGF-C. full
15	350	83.5	350	20	AAV30519	A truncated vascul
16	350	83.5	350	20	AAI23521	Truncated human VE
17	350	83.5	350	21	AAV97145	Human VEGF-2 prote
18	350	83.5	350	22	AAV97577	Human vascular end
19	332	79.2	419	18	AAW11478	Human growth facto
20	312	74.5	318	20	AAW08284	Human growth facto
21	309	73.7	350	16	AAW82586	Vascular endotheli
22	309	73.7	419	18	AAW13833	Human vascular end
23	309	73.7	419	19	AAW75751	Human vascular end
24	301	71.8	307	20	AAW86222	Human VEGF-C trunc
25	296	70.6	302	20	AAW86223	Human VEGF-C trunc
26	291	69.5	297	20	AAW86224	Human VEGF-C trunc
27	286	68.3	292	20	AAW86225	Human VEGF-C trunc
28	113	27.0	113	20	AAW08285	Human growth facto
29	68	16.2	415	18	AAW00933	Human growth facto
30	68	16.2	415	19	AAW75742	Mouse VEGF-2 recepto
31	31	7.4	418	18	AAW00934	Mouse VEGF-2 recepto
32	31	7.4	418	19	AAW75743	Quail VEGF-2 recepto

ALIGNMENTS

RESULT	ID	AAV30518	standard: Protein: 419 AA.
XX	AC	AAV30518:	
XX	DT	16-NOV-1999 (first entry)	
XX	DE	Vascular endothelial growth factor-2 (VEGF-2).	
XX	KW	Human vascular endothelial growth factor-2; VEGF-2;	
XX	KW	vascular endothelial cell growth; endothelial cell migration;	
XX	KW	angiogenesis; blood pressure; blood flow; immune system disorder;	
XX	KW	immune cell; cancer; autoimmune disorder; blood protein disorder;	
XX	KW	ataxia telangiectasia; common variable immunodeficiency;	
XX	KW	digestive syndrome; HIV infection; HTLV-BLV infection;	
XX	KW	leukocyte adhesion deficiency syndrome; lymphopenia;	
XX	KW	phagocyte bactericidal dysfunction; severe combined immunodeficiency;	
XX	KW	Wiskott-Aldrich disorder; anemia; thrombocytopenia; hemoglobinuria;	
XX	KW	allergy; asthma; allergic asthma.	
OS		Homo sapiens.	
XX	PN	WO946364-A1.	
XX	PN	16-SEP-1999.	
XX	PF	10-MAR-1999; 99MO-US05021.	
XX	PR	13-MAR-1998; 98US-0042105.	
XX	PR	30-JUN-1998; 98US-0107997.	
XX	PA	(HUMA-) HUMAN GENOME SCI INC.	
XX	PI	Rosen CA, Cao L, Hu J;	
XX	PI	WPI; 1999-551399/46.	
XX	DR	N-PSDB; AA210523.	
XX	PT	New human vascular endothelial growth factor-2, used for treating, e.g.	
XX	PT	immune disorders and cancers	
XX	PS	Claim 12; Fig 1A-E; 222pp; English.	
XX	CC	The present sequence represents vascular endothelial growth factor-2	
XX	CC	(VEGF-2). The VEGF-2 polypeptides have activities similar to VEGF. The	
XX	CC	VEGF-2 polypeptides stimulate the growth of vascular endothelial cells,	

CC stimulate endothelial cell migration, stimulate angiogenesis, decrease
CC blood pressure, and increase blood flow. The polynucleotides and
CC polypeptides can be used for preventing, treating or ameliorating a
CC medical condition. The VEGF-2 polypeptides or polynucleotides may be
CC useful in treating deficiencies or disorders of the immune system, by
CC activating or inhibiting the proliferation, differentiation, or
CC mobilization (chemotaxis) of immune cells. The etiology of these immune
CC deficiencies (or disorders) may be genetic, somatic, such as cancer or
CC some autoimmune disorders, acquired (e.g. by chemotherapy or toxins), or
CC infectious. Examples of immunologic deficiency syndromes include blood
CC protein disorders, ataxia telangiectasia, common variable
CC immunodeficiency, DiGeorge syndrome, HIV infection, HTLV-BLV infection,
CC leukocyte adhesion deficiency syndrome, lymphopenia, phagocyte
CC bactericidal dysfunction, severe combined immunodeficiency (SCIDs),
CC Wiskott-Aldrich disorder, anemia, thrombocytopenia, or hemoglobinuria.
CC They can also be used to modulate emostatic or thrombolytic activity.
CC Similarly allergic reactions and conditions such as asthma (particularly
CC allergic asthma) or other respiratory problems, may also be treated.

SQ Sequence 419 AA:

Query Match 100.0%: Score 419; DB 20; Length 419;
Best Local Similarity 100.0%: Pred. No. 0;
Matches 419; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 MHSLGFSVACSLAALLPGPREAPAAAAAFESGIDLSDAEPDAGEATAYASKDLEQL 60
DB 1 mslgffsvacslaaallpgpreapaaaaafesgidlsdaepdageatayaskdleeql 60
OY 61 RSVSSVDELMTLVLPYEWKMYKCOLRKGGWQNNRQANNSTEETIRKAAAHYNTIELIK 120
DB 61 rsvssvdelmtlvlypeywkmkqqlrkqgqnnreganlnsteeclikaaahyntelilk 120
OY 121 SIDNEMRKQCPMREVCIDVGEKFGVATNTFFKPCVSVYRGGCCNSGLOCMNTSTSY 180
DB 121 sidnemrkqcmprcvcidvgekfvyatntffkpcvsvyrrggccnsegldcmntstsy 180
OY 181 LSKTLFEITVPLVPSQGPVLTISFANHTSCRCMSKLDVYRQVHSIIRSLPATLPQOQAN 240
DB 181 lsktlfeitvplpsqgpvltisfanhtscrcmskldvyqvnslirrspatlpqogaan 240
OY 241 KTCPTNYMNNHICICLAODEMFSSDAGDDSTDGFHDICGNKELDETCQCVCRAGIR 300
DB 241 ktcptnymnnhirciclaodedmfssdagddstldgfhdicgnkeldeetcqcvcraglr 300
OY 301 PASCGPHKELDRNSQCVCNKLFPSCGANREPDENTCQVCCKRTCPNQPINPGKAC 360
DB 301 pascgphkeldrnscqvcnklfpscgaanreidentcqcvcckrtcpnqpinpgkac 360
OY 361 ECTESPQKCLGKKRHHOTGSCYRRPCTNRKACBPGEFSYSEVYCRVPSYWRPQMS 419
DB 361 ectespqckllgkkrfhqhtcscyrpctnrqkacepgfsyseevcrvpsywrpqrms 419

RESULT 2

AAI22320
ID AAI22320 standard; Protein; 419 AA.

XX AAY22320;

XX 22-SEP-1999 (first entry)

XX Full length human VEGF2 protein sequence.

XX VEGF2; vascular endothelial growth factor 2; angiogenesis; bone damage;

XX endothelial cell proliferation; tissue damage; therapy.

XX Homo sapiens.

XX US5932540-A.

XX 03-AUG-1999.

XX 24-DEC-1997; 9705-0999811.
PF 24-DEC-1997; 9705-0999811.
XX 24-DEC-1997; 9705-0999811.
PR 08-MAR-1994; 94US-0207550.
PR 06-JUN-1995; 95US-0465968.
XX (HUMA-) HUMAN GENOME SCI INC.
PA Cao L, Hu J, Rosen CA;
PI WPI. 1999-443606/37.
DR N-PSDB: AAX84837.
XX Vascular endothelial growth factor 2 for wound healing and vascular
PT repair
XX Claim 1; Fig 1; 49pp; English.

CC This sequence is the vascular endothelial growth factor 2 (VEGF2),
CC of the invention. The isolated polypeptide is useful for stimulating
CC angiogenesis, by promoting the proliferation of endothelial cells, for
CC the treatment of a wound, or for the treatment of tissue or bone damage.

SQ Sequence 419 AA:

Query Match 100.0%: Score 419; DB 20; Length 419;
Best Local Similarity 100.0%: Pred. No. 0;
Matches 419; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 MHSLGFSVACSLAALLPGPREAPAAAAAFESGIDLSDAEPDAGEATAYASKDLEQL 60
DB 1 mslgffsvacslaaallpgpreapaaaaafesgidlsdaepdageatayaskdleeql 60
OY 61 RSVSSVDELMTLVLPYEWKMYKCOLRKGGWQNNRQANNSTEETIRKAAAHYNTIELIK 120
DB 61 rsvssvdelmtlvlypeywkmkqqlrkqgqnnreganlnsteeclikaaahyntelilk 120
OY 121 SIDNEMRKQCPMREVCIDVGEKFGVATNTFFKPCVSVYRGGCCNSGLOCMNTSTSY 180
DB 121 sidnemrkqcmprcvcidvgekfvyatntffkpcvsvyrrggccnsegldcmntstsy 180
OY 181 LSKTLFEITVPLVPSQGPVLTISFANHTSCRCMSKLDVYRQVHSIIRSLPATLPQOQAN 240
DB 181 lsktlfeitvplpsqgpvltisfanhtscrcmskldvyqvnslirrspatlpqogaan 240
OY 241 KTCPTNYMNNHICICLAODEMFSSDAGDDSTDGFHDICGNKELDETCQCVCRAGIR 300
DB 241 ktcptnymnnhirciclaodedmfssdagddstldgfhdicgnkeldeetcqcvcraglr 300
OY 301 PASCGPHKELDRNSQCVCNKLFPSCGANREPDENTCQVCCKRTCPNQPINPGKAC 360
DB 301 pascgphkeldrnscqvcnklfpscgaanreidentcqcvcckrtcpnqpinpgkac 360
OY 361 ECTESPQKCLGKKRHHOTGSCYRRPCTNRKACBPGEFSYSEVYCRVPSYWRPQMS 419
DB 361 ectespqckllgkkrfhqhtcscyrpctnrqkacepgfsyseevcrvpsywrpqrms 419

RESULT 3

AAI97144
ID AAI97144 standard; Protein; 419 AA.

XX AAY97144;

XX 22-DEC-2000 (first entry)

XX Vascular endothelial growth factor-2 (VEGF-2).

XX Vascular endothelial growth factor 2; VEGF-2; retina; angiogenesis;

XX treatment; injury; degeneration; photoreceptors; eye;

XX angiod streaks; retinitis; pigmentosa; human;

KM	age-related macular degeneration: diabetic retinopathy.
XX	
OS	Homo sapiens.
XX	
PN	MO200045835-A1.
XX	
PD	10-AUG-2000.
XX	
PF	07-FEB-2000: 2000MO-US03047.
XX	
PR	08-FEB-1999: 99US-0119179.
PR	12-FEB-1999: 99US-0119926.
PR	03-JUN-1999: 99US-0137796.
PR	22-DEC-1999: 99US-0171505.
XX	
PA	(HUMA-) HUMAN GENOME SCI INC.
XX	
PI	Rosen CA, Alderson R, Melder R, Roschke V, Ruben SM:
XX	
DR	WPI: 2000-532862/48.
DR	N-PSDB: AAA52080.
XX	
PT	Treating injury or degeneration of photoreceptors comprises
PT	administering to a subject vascular endothelial growth factor 2
PT	(VEGF-2)
XX	
PS	Claim 31: Fig 1a-e: 252pp: English.
XX	
CC	Administration of vascular endothelial growth factor 2 (VEGF-2)
CC	to a patient can be used for treating injury or degeneration of
CC	photoreceptors associated with e.g. angiod streaks, retinitis
CC	pigmentosa, age-related macular degeneration, diabetic retinopathy,
CC	etc. VEGF-2 promotes angiogenesis, the formation of new blood
CC	vessels in the retina.
XX	
SQ	Sequence 419 AA:
Query Match 100.0%: Score 419: DB 21: Length 419:	
Best Local Similarity 100.0%: Pred. No. 0:	
Matches 419: Conservative 0: Mismatches 0: Indels 0: Gaps 0:	
QY	1 MHSLGFFSVACSLAAALPGPREAPAAAAAFSSGLDLSAEPDAGEATAYASKDLEOL 60
DB	1 mhsllgffsvacsllaaallpgpreapaaaaafesgldlsaeppageatayaskdleol 60
QY	61 RSVSSYDELMFTVLYPEYKWKYKQQLRKGGWQHNRQANLSRTEETIKFAAAHYNETILK 120
DB	61 rsvssydelmtvlypeywkmykqqlrkgyqghnreganlnsrteetlkfaaahynetilk 120
QY	121 SINENRKTQCMREVCIDGKEFGVATNFEKPPCVSVYRCGCCNSELQCMNSTSY 180
DB	121 sinenrktqcmrevidgkelyvatnltfppcvsvyrcgcccnselqcmnstsy 180
QY	181 LSKTFEITVPLSQGPVYITISFAMHTSCRMKSLDYRVQVHSIIRKSLPATLPOCOAN 240
DB	181 lsktfeitvplsqgprvyltisfamtscrmksldyrvqvhslirslpatlpqcaan 240
QY	241 KTCPTVMNNNHICRCLAODFWFSSAGDSDVDGPHDTCGPKMKELDEETCCQVCNAGLR 300
DB	241 ktcptrymmnnhlcrtclagdfmftssagdsfdgfhdlcgnpkeldetecqvcnaglr 300
QY	301 PASCGRHKEIDRNSCOCVCNKLFPSCGANREPDENTCQVCNKRTPRQNPINPGKAC 360
DB	301 pascgrpkeldrnsccvcnklfpscganrepdentcgcvcnkrtpcnpingpkac 360
QY	361 ECTESPOKCLLAKRKRHHQTCSCYRRPCTNRKQACEPGESYSEBVCRCVSWQRPOMS 419
DB	361 ectespgkcllkqkktfhqtcscyrpctnrkacepgsfyseevrcvswyqrpoms 419

RESULT 4
AA97570

ID	AA97570 standard: Protein: 419 AA.
XX	
AC	AA97570:
XX	
DT	05-APR-2001 (first entry)
XX	
DE	Human VEGF-B protein sequence.
XX	
KM	Human: angiogenic protein: wound healing; vascular tissue repair;
KM	peripheral arterial disease; critical limb ischaemia; coronary disease;
KM	angiogenesis; tumour; inflammation; diabetic retinopathy; psoriasis;
KM	rheumatoid arthritis; autoimmune disease; allergy; cancer; therapy;
KM	infectious disease; neurodegeneration;
XX	vascular endothelial growth factor-B; VEGF-B.
OS	
XX	Homo sapiens.
PN	MO200075163-A1.
XX	
PD	14-DEC-2000.
XX	
PF	01-JUN-2000: 2000MO-US14925.
XX	
PR	03-JUN-1999: 99US-0137796.
XX	
PA	(HUMA-) HUMAN GENOME SCI INC.
XX	
PI	Rosen CA, Ruben SM, Hu J, Cao L:
XX	
DR	WPI: 2001-071057/08.
DR	N-PSDB: AAA91004.
XX	
PT	New nucleic acid encoding angiogenic proteins, useful e.g. for
PT	promoting healing of wounds and treating peripheral arterial disease,
PT	critical limb ischaemia or coronary disease -
XX	
PS	Claim 11: Fig 1: 244pp: English.
XX	
CC	This sequence is vascular endothelial growth factor-B (VEGF-B),
CC	which is an angiogenic protein of the invention. The angiogenic proteins
CC	and the DNA sequences encoding them, are used to prevent, treat or
CC	ameliorate disease and to detect diseases, or susceptibility, by
CC	detecting mutations or the presence or amount of angiogenic protein
CC	expression. Particularly they are used to stimulate wound healing,
CC	growth of damaged bone and tissue, and for repair of vascular tissue,
CC	especially peripheral arterial disease, critical limb ischaemia or
CC	coronary disease. Antagonists of the sequences are used to inhibit
CC	angiogenesis in tumours and to treat inflammation (where associated with
CC	increased vascular permeability), diabetic retinopathy, rheumatoid
CC	arthritis or psoriasis. Agonists are also useful for stimulating
CC	(lymph)angiogenesis. The proteins are also used to identify specific
CC	binding agents (potential therapeutic agents) and to raise antibodies.
CC	The antibodies are useful as therapeutic (ant)agonists; for detection,
CC	purification and targeting of proteins for in vivo or in vitro diagnosis
CC	(including imaging) or for therapy (including when linked to e.g. a label
CC	or cytotoxin); and for immunotyping of cells; e.g. for detecting minimal
CC	residual disease or haematopoietic progenitor/stem cells. It is also
CC	contemplated that the sequences might be useful for treating a very wide
CC	range of other disorders, e.g. autoimmune diseases; allergy; cancer;
CC	infectious diseases (viral, bacterial, fungal or parasitic);
CC	neurodegeneration, also as chemotactic agents or for stimulating
CC	regeneration of the nervous system etc.
XX	
SQ	Sequence 419 AA:
Query Match 100.0%: Score 419: DB 22: Length 419:	
Best Local Similarity 100.0%: Pred. No. 0:	
Matches 419: Conservative 0: Mismatches 0: Indels 0: Gaps 0:	
QY	1 MHSLGFFSVACSLAAALPGPREAPAAAAAFSSGLDLSAEPDAGEATAYASKDLEOL 60
DB	1 mhsllgffsvacsllaaallpgpreapaaaaafesgldlsaeppageatayaskdleol 60

QY 61 RSVSVDLMTLVLPPEYKMYKCOLRKSGMHNREOANLNSRTEETIKFAAHYTEILK 120
 CC |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 CC protein (flk-1bp) (see AAW17837) that binds to the receptor tyrosine
 CC kinase flk-1 expressed on vascular endothelial and other cells.
 Db 61 rsvsvdelmtlvlppeykmykcolrksgwmhnrqanlnsrteetlkfaahyntelilk 120
 CC |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 CC The mature flk1bp can be secreted from host cells transformed with
 CC an expression vector including an isolated flk-1bp cDNA clone (see
 CC AAW68811). Flk-1bp can be used to isolate cells to which it binds,
 CC for use in studying the roles of such cells and of flk-1 in
 CC vasculogenesis and angiogenesis. Angiogenesis inhibition or
 CC increased vascularisation may be clinically desirable (e.g. to
 CC suppress solid tumour growth or in wound healing, respectively).
 QY 241 KTCPTNMYNNHICRCLAOEDFMFSSDAGDSDTDFHIDCGNKLDEETCCVCRCAGLR 300
 CC |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 CC The flk-1bp can be administered to treat conditions with defective
 CC or insufficient flk-1. Polypeptides may also act as carriers to
 CC deliver diagnostic/therapeutic agents to cells to which flk-1bp
 CC binds, to generate antibodies, and to identify flk-1bp antagonists
 CC useful for treating flk-1bp mediated conditions.
 Db 241 ktcptnymnnhircrclaoedfmfssdagddstdgfhidcgnkdeetccvcrcaglr 300
 CC |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 QY 301 PASCGPHKELDRNSCQCCKNLFPSCGAGNREFDENTCQCVCCKRTCPNQLPBGKAC 360
 CC |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Db 301 pascgphkeldrnscqccvcknlfpscgagntefdentccvcckrtcpnqlpbgkac 360
 CC |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 QY 361 ECTESPQKCLLKGKKFHQTCSCYRRPCTNRKACPEPFSYSEECRCVPSYWRPQMS 419
 CC |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Db 361 ectespqkcllkgkkfhqtcscyrrpctnrqkacepgfsyseecrcvpsywqrpqms 419
 CC |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||

RESULT 5

AAW17837
 ID AAW17837 standard; Protein: 419 AA.
 AC AAW17837;

DT 13-JAN-1998 (first entry)
 DE Human foetal liver kinase A binding protein flk-1bp.
 KW Foetal liver kinase 1 binding protein; human: flk-1bp;
 KW receptor tyrosine kinase; vasculogenesis; angiogenesis;
 KW wound healing; tumour; therapy; antagonist; antibody.
 OS Homo sapiens.
 FH Key Location/Qualifiers
 FT Peptide 1..20
 FT Protein /label= Sig_peptide
 FT /label= Mat.protein
 FT /note= "(Claim 10)"
 FT Peptide 21..35
 FT /label= N-terminal
 FT /note= "(Claim 9)"

PN MO9717442-A1.
 PD 15-MAY-1997.
 PF 05-NOV-1996; 96WO-US17584.
 PR 08-NOV-1995; 95US-0554374.
 PA (IMMUNEX CORP.
 PI Lyman SD;
 DR MPI: 1997-281031/25.
 DR N-PSDB: AAT68811.
 PT DNA encoding a human foetal liver kinase 1 binding protein - used
 PT to treat conditions with insufficient protein, deliver agents to
 PT cells and identify antagonists to treat protein-mediated conditions
 PS Claim 1: Page 30-32; 43pp; English.

CC This polypeptide comprises a human foetal liver kinase 1 binding
 CC protein (flk-1bp) (see AAW17837) that binds to the receptor tyrosine
 CC kinase flk-1 expressed on vascular endothelial and other cells.
 CC The mature flk1bp can be secreted from host cells transformed with
 CC an expression vector including an isolated flk-1bp cDNA clone (see
 CC AAW68811). Flk-1bp can be used to isolate cells to which it binds,
 CC for use in studying the roles of such cells and of flk-1 in
 CC vasculogenesis and angiogenesis. Angiogenesis inhibition or
 CC increased vascularisation may be clinically desirable (e.g. to
 CC suppress solid tumour growth or in wound healing, respectively).
 CC The flk-1bp can be administered to treat conditions with defective
 CC or insufficient flk-1. Polypeptides may also act as carriers to
 CC deliver diagnostic/therapeutic agents to cells to which flk-1bp
 CC binds, to generate antibodies, and to identify flk-1bp antagonists
 CC useful for treating flk-1bp mediated conditions.
 SQ Sequence 419 AA:

Query Match 97.9%; Score 410; DB 18; Length 419;
 Best Local Similarity 100.0%; Pred. No. 0;
 Matches 410; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 4 LGFFSVAGSLAALPGPREAPAAAAAFESGLDSDAEPDAGEATAYASKDLEQLRSV 63
 Db 4 lggfsvagslaaalpgrpreeapaaaafesgldlsdaepdageatayskdlleqlrsv 63
 QY 64 SSVDELMTLVLPPEYKMYKCOLRKSGMHNREOANLNSRTEETIKFAAHYTEILKSID 123
 Db 64 ssvdelmtlvlppeykmykcolrksgwmhnrqanlnsrteetlkfaahyntelilksid 123
 QY 124 NEMRKTQCMRPREVCIDVGEKEFGVATNTEFFKPPCVSYRCGCGCNSGLOCMNTSTSYLSK 183
 Db 124 nemrktqcmprrevcidvgekefgvatnteffkppcvsyrrcgcgcnseglocmntstsylsk 183
 QY 184 TLFEITVPLSGCPKPYTISFANHTSCRCMSKLDYRQVHSITRSLPATLPCCQAANKTC 243
 Db 184 tlfeitvplsgcpkpytisfanhtscrcmskldyrvqhsitrsilpatlpccqaanktc 243
 QY 244 PTNYMMNNHICRCLAOEDFMFSSDAGDSDTDFHIDCGNKLDEETCCVCRCAGLRPAS 303
 Db 244 ptnymnnhircrclaoedfmfssdagddstdgfhidcgnkdeetccvcrcaglrpas 303
 QY 304 CGPHKELDRNSCQCCKNLFPSCGAGNREFDENTCQCVCCKRTCPNQLPBGKACCECT 363
 Db 304 cgphekeldrnscqccvcknlfpscgagntefdentccvcckrtcpnqlpbgkacect 363
 QY 364 ESPQKCLLKGKKFHQTCSCYRRPCTNRKACPEPFSYSEECRCVPSYW 413
 Db 364 espqkcllkgkkfhqtcscyrrpctnrqkacepgfsyseecrcvpsyw 413

RESULT 6

AAW00932
 ID AAW00932 standard; Protein: 419 AA.
 AC AAW00932;

DT 10-NOV-1997 (first entry)
 DE Human Flt4 receptor tyrosine kinase ligand VEGF-C.
 KW VEGF-C; Flt4; receptor tyrosine kinase; VEGFR-3; human;
 KW vascular endothelial growth factor receptor-3; ligand;
 KW angiogenesis; wound healing; lymph vessel; lymphangioma;
 KW cancer; metastasis; therapy; diagnosis; antibody; inhibitor.
 OS Homo sapiens.
 FH Key Location/Qualifiers
 FT Peptide 1..102
 FT Peptide /label= Prepro-peptide
 FT Peptide 32..227

FT	/note= "preferred active fragment of VEGF-C,
FT	retaining Flt4 ligand activity (Claim 15)"
FT	Peptide
FT	103..217
FT	/note= "preferred active fragment of VEGF-C,
FT	retaining Flt4 ligand activity (Claim 12)"
FT	Peptide
FT	103..225
FT	/note= "preferred active fragment of VEGF-C,
FT	retaining Flt4 ligand activity (Claim 13)"
FT	Peptide
FT	103..227
FT	/note= "preferred active fragment of VEGF-C,
FT	retaining Flt4 ligand activity (Claim 14)"
FT	Peptide
FT	113..213
FT	/note= "preferred active fragment of VEGF-C,
FT	retaining Flt4 ligand activity (Claim 10)"
FT	Peptide
FT	113..227
FT	/note= "preferred active fragment of VEGF-C,
FT	retaining Flt4 ligand activity (Claim 11)"
FT	Peptide
FT	131..211
FT	/note= "preferred active fragment of VEGF-C,
FT	retaining Flt4 ligand activity (Claim 9)"
FT	Peptide
FT	161..221
FT	/note= "preferred active fragment of VEGF-C,
FT	retaining Flt4 ligand activity (Claim 8)"
XX	
PN	WO9705250-A2.
PD	
PD	13-FEB-1997.
PE	
PE	01-AUG-1996; 96MO-FI00427.
XX	
FR	28-JUN-1996; 96US-0671573.
PR	01-AUG-1995; 95US-0510133.
PR	12-JAN-1996; 96US-0588895.
PR	14-FEB-1996; 96US-0601132.
XX	
PA	(UYHE-) UNIV HELSINKI LICENSING LTD OY.
P1	
P1	Aitalo K, Joukov V;
XX	
DR	WPI: 1997-145688/13.
XX	
DR	N-PsDB: AAm84276.
XX	
PT	Flt4 receptor tyrosine kinase ligand and related nucleic acid - used
PT	to modulate growth of endothelial cells and for diagnosis of
PT	endothelial cell diseases
PS	
PS	Claim 7: Page 112-113; 183pp; English.
XX	
CC	This polypeptide comprises the pre-pro sequence of human VEGF-C,
CC	a novel ligand that binds specifically to human Flt4 receptor
CC	tyrosine kinase (VEGFR-3), stimulating phosphorylation of the
CC	receptor. Its sequence was deduced from a cDNA clone (AAm84276)
CC	obt. from a PC-3 prostatic adenocarcinoma cell (ATCC CRL 1435)
CC	library. The polypeptide, or its active fragments, can be
CC	expressed in transformed or transfected host cells for use in
CC	claimed methods for detecting endothelial cells (e.g. to image
CC	lymphatic vessels, endothelial venules, Flt4 receptor in
CC	histochemical tissue) and also to modulate the growth of mammalian
CC	endothelial cells (e.g. to accelerate angiogenesis and to promote
CC	endothelial function of lymphatic vessels). Inhibitors of
CC	VEGF-C, such as antibodies, can be used to control endothelial
CC	cell proliferation, e.g. lymphangioma or metastatic cancer.
CC	Mouse and quail VEGF-C sequences (see AAm00934-35) have also been
CC	isolated.
XX	
XQ	Sequence 419 AA:

Query Match	97.9%	Score 410	DB 18	Length 419
Best Local Similarity	100.0%	Pred. No. 0		
Matches 410: Conservative	0	Mismatches	0	Indels 0
Gaps 0				
4	LCFFVACSLAALLPGCPRAAPAAAAAEESGLDSDAPDPDGENTATVSKDLEQLRV	63		

[illegible]

Claim 1, Page 112-115, 177pp, English.

The vascular endothelial growth factor C (VEGF-C) polypeptides have activities affecting growth and migration of vascular endothelial cells, promoting growth of lymphatic endothelial cells and lymphatic vessels, increasing vascular permeability, and affecting myelopoiesis. These products can be used for stimulating angiogenesis, for inhibiting angiogenesis, for stimulating lymphangiogenesis, treatment or prevention of angiogenesis.

CC of inflammation, oedema, elephantiasis, or Milroy's disease. They can
CC also be used to modulate myelopoiesis, e.g. treating granulocytopenia.
CC They can also be used for modulating the growth of endothelial cells.
CC They can also be used to stimulate lymphocyte production and maturation,
CC and to promote or inhibit trafficking of leucocytes between tissues and
CC lymphatic vessels or to affect migration in and out of the thymus.

XX Sequence 419 AA:

Query Match 97.9%; Score 410; DB 19; Length 419;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 410; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 4 LGFFSVACSLAAALPGPREAPAAAAAFESGLDSDAPDAGEATAYASKDLEQLRSV 63
DB 4 lgffsvacslaaallpgpreapaaaaafesglidsdaepdagatayaskdleqlrsv 63
QY 64 SSVDELMTVLYPEYKWKYKQQLRKGMQHNROANLNSTTEETIKFAAHYNTTEIKSID 123
DB 64 ssvdelmtvlypeywkmykcqlrkqgwqhnrqanlnsrteetikfaahynteliksids 123
QY 124 NEMRTOCMRPVCIIDVGEKFGVATNTPFKPPCVSVYRCGGCNSBGLOCMNTSTSYLSK 183
DB 124 newrtqcmprvciidvgekfvgatntpfkppcvsvyrcggcnsbglocmntstsylsk 183
QY 184 TLFETITVPLSQGPKPVITISFANHTSCRCMSKLDVYRQVHSIIRSLPATLPQQAANKTC 243
DB 184 tlfeitivplsogpkpvtisfanhtscrcmskldvyryqvhslirslpatlpgqganktc 243
QY 244 PTNYWMNNHICRCIAOEDPMFSSDAGDSTDFHDIQGNKLEDETCQVCVRAGLRPAS 303
DB 244 ptnymnnhircrlaqedfmsdagdstdfhdiqgnkelledetqcvcvraglrrpas 303
QY 304 CGPHKELDRNSGQCVCKNKLFPSCGANREFDENTCCVCRTCPRNQPLNPGKCAECT 363
DB 304 cgpheleldrnsqgcvcnkllfpgsganrefdentccvcrtcpnrnplnpgkacect 363
QY 364 ESPQCKLKGKKFHQTCSCYRRPCTNRQKACEPGFSYSEEVCRCPVPSYW 413
DB 364 espqckllkgkkfhqtcscyrrpctnrqkacepgfsyseecrcrvpsyw 413

RESULT 8
AAM86203 standard; protein: 419 AA.

AC AAM86203;

DT 16-FEB-1999 (first entry)

XX Human vascular endothelial growth factor (VEGF)-C sequence.

XX VEGF: VRF; vascular endothelial growth factor; VEGF-related protein;
KW recombinant; truncated; gene therapy; angiogenesis; cardiac ischaemia;
KW coronary; collateral vessel development; cell growth; migration; heart;
KW lower limb ischaemia; stroke; peripheral vascular disease; intestine;
KW wound healing; skin; vascular permeability.

OS Homo sapiens.

XX W09849300-A2.

XX 05-NOV-1998.

XX 20-APR-1998; 98WO-US07801.

XX 25-APR-1997; 97US-0842984.

PA (COLL-) COLLATERAL THERAPEUTICS.

XX Bohlen P;

XX

DR WPI; 1999-009426/01.

XX New truncated vascular endothelial growth factor-related protein
PT subunits - lack part of the N-terminal sequence, used to stimulate
PT angiogenesis, e.g. for treating heart disease and ischaemia
XX
XX Disclosure; Fig 1; 113pp; English.

CC This represents the amino acid sequence of human vascular endothelial
CC growth factor (VEGF)-C protein. The invention provides truncated VRF
CC (VEGF-related protein) subunits that have at least one amino acid
CC N-terminal to the first Cys of the core sequence deleted. Host cells
CC transfected or transfected with expression vectors containing nucleic
CC acids encoding the truncated VRF subunits are used to produce the
CC truncated proteins recombinantly. The truncated VRF subunits, optionally
CC expressed from gene therapy vectors, have in vivo and in vitro angiogenic
CC activity and are used to stimulate angiogenesis, particularly coronary
CC collateral vessel development in cases of cardiac ischaemia; to stimulate
CC endothelial cell growth and migration in vitro; to treat heart disease;
CC to treat ischaemia (e.g. cardiac, chronic coronary or chronic lower limb
CC ischaemia; stroke and peripheral vascular disease); to promote healing of
CC wounds (of skin or intestines), and to increase vascular permeability.

XX Sequence 419 AA:

Query Match 97.9%; Score 410; DB 20; Length 419;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 410; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 4 LGFFSVACSLAAALPGPREAPAAAAAFESGLDSDAPDAGEATAYASKDLEQLRSV 63
DB 4 lgffsvacslaaallpgpreapaaaaafesglidsdaepdagatayaskdleqlrsv 63
QY 64 SSVDELMTVLYPEYKWKYKQQLRKGMQHNROANLNSTTEETIKFAAHYNTTEIKSID 123
DB 64 ssvdelmtvlypeywkmykcqlrkqgwqhnrqanlnsrteetikfaahynteliksids 123
QY 124 NEMRTOCMRPVCIIDVGEKFGVATNTPFKPPCVSVYRCGGCNSBGLOCMNTSTSYLSK 183
DB 124 newrtqcmprvciidvgekfvgatntpfkppcvsvyrcggcnsbglocmntstsylsk 183
QY 184 TLFETITVPLSQGPKPVITISFANHTSCRCMSKLDVYRQVHSIIRSLPATLPQQAANKTC 243
DB 184 tlfeitivplsogpkpvtisfanhtscrcmskldvyryqvhslirslpatlpgqganktc 243
QY 244 PTNYWMNNHICRCIAOEDPMFSSDAGDSTDFHDIQGNKLEDETCQVCVRAGLRPAS 303
DB 244 ptnymnnhircrlaqedfmsdagdstdfhdiqgnkelledetqcvcvraglrrpas 303
QY 304 CGPHKELDRNSGQCVCKNKLFPSCGANREFDENTCCVCRTCPRNQPLNPGKCAECT 363
DB 304 cgpheleldrnsqgcvcnkllfpgsganrefdentccvcrtcpnrnplnpgkacect 363
QY 364 ESPQCKLKGKKFHQTCSCYRRPCTNRQKACEPGFSYSEEVCRCPVPSYW 413
DB 364 espqckllkgkkfhqtcscyrrpctnrqkacepgfsyseecrcrvpsyw 413

RESULT 9
AAB10648 standard; protein: 419 AA.

AC AAB10648;

DT 19-JAN-2001 (first entry)

XX Human VEGC protein.

XX VEGF-X; vascular endothelial growth factor; human; vulnery; cytostatic;
KW antirheumatic; antiarthritic; antiproliferative; antidiabetic; treatment;
KW angiogenesis regulator; vascularization regulator; cancer; psoriasis;
KW rheumatoid arthritis; diabetic retinopathy; blood vessel; organ repair;

[illegible][illegible]

```
OY 124 NEMRKTCMPREVCIDVGKEFGVATNTFFKPPCVSVYRCGGCCNSBGLQCMNTSTSLK 183
XX |||||||
PI newrkqcmprcvcldvgefgvatntffkppcvsvyrcggcnsbglqcmntstslsk 183
DB 124 newrkqcmprcvcldvgefgvatntffkppcvsvyrcggcnsbglqcmntstslsk 183
OY 184 TLFETVPLSOGPKPYTISFANHTSCRCMSKLDVYRQVHSIIRSLPATLPQCAANKTC 243
XX |||||||
PI tlfetvplsogpkpytisfanhtscrcmskldvyrqvhsilrslpatlpqcaanktc 243
DB 184 tlfetvplsogpkpytisfanhtscrcmskldvyrqvhsilrslpatlpqcaanktc 243
OY 244 PTNYMNNHICRCLAQEDFMFSSDAGDSDTDGPHDICGNKELDEFTCCQVCRAGLRPAS 303
XX |||||||
PI ptnymnnhicroclaqedfmfssdagdsdtdgphdicgnkeldeftccqvcraglrpas 303
DB 244 ptnymnnhicroclaqedfmfssdagdsdtdgphdicgnkeldeftccqvcraglrpas 303
OY 304 CGPHKELDNSQCVCNKLFPSCGAGNREPENTCCQVCKRTPCPRNOPLNPQKACCECT 363
XX |||||||
PI cgphkeldnscqvcnklfpscgaanrepentccqvcckrtcpnnglmpqkacect 363
DB 304 cgphkeldnscqvcnklfpscgaanrepentccqvcckrtcpnnglmpqkacect 363
OY 364 ESPQCKLKGKRFHHQTCSCYRPPCTNRKACBPFGSYSEEVCRCPYSW 413
XX |||||||
PI espqcklkgkrfhhqtcscyrppctnrkacbpfgsyseevcrcpsyw 413
DB 364 espqcklkgkrfhhqtcscyrppctnrkacbpfgsyseevcrcpsyw 413
```

RESULT 11

```
AAV70749
ID AAV70749 standard; Protein: 419 AA.
XX
AC AAV70749;
XX
DT 17-AUG-2000 (first entry)
XX
DE Human prepro-vascular endothelial growth factor C.
XX
KM Human; receptor tyrosine kinase; RTK; Flt4; fms-like tyrosine kinase 4;
KM VEGFR-3; vascular endothelial growth factor receptor-3; chromosome 5q35;
KM cytosolic; tumour imaging; anti-tumour therapy; treatment; diagnosis;
KM neoplastic disease; lymphoma; carcinoma; breast; squamous cell; melanoma;
KM sarcoma; malignancy; VEGF-C; vascular endothelial growth factor C.
XX
OS Homo sapiens.
XX
FH Key Location/Qualifiers
FT Peptide 1..31
FT Peptide /label= Signal_peptide
FT Peptide 32..103
FT Peptide /label= N-terminal_peptide
FT Peptide /note= "cleavage of this peptide from partially processed
VEGF-C produces a fully processed mature form of VEGF-C
of 21-23 kd which has high affinity to VEGFR-2"
104..227
FT Protein /label= Mature_VEGF-C
FT Peptide 228..419
FT Peptide /label= C-terminal_peptide
FT Peptide /note= "Has a pattern of spaced cysteine residues
reminiscent of a Balbiani ring 3 protein (BR3P) sequence;
cleavage of signal peptide and the C-terminal
peptide produces a partially processed form of VEGF-C of
about 29 kd which has high affinity to Flt4 (VEGFR-3)"
113..213
FT Binding-site /note= "binds and stimulates VEGF-C receptors: Cys
at position 156 is essential for VEGFR-2 binding and at
157 is essential for VEGFR-3 binding"
131..211
FT Region /note= "important for VEGF-C activity"
FT
XX WO200021560-A1.
XX
PD 20-APR-2000.
XX
PE 08-OCT-1999; 99WO-US23525.
XX
PR 09-OCT-1998; 98US-0169079.
XX
PA (LUDWIG INST CANCER RES.
```

(UYHE-) UNIV HELSINKI LICENSING LTD OY.

Alitalo K, Kaipainen A, Vainio R, Jussila L;

WPI: 2000-317650/27.

Treating neoplastic diseases such as lymphoma, carcinomas, melanomas
and sarcomas, involves administering a compound capable of inhibiting
binding of ligand proteins to fms-like tyrosine kinase-4 receptor

Example 15-17; Page 140-142; 148pp; English.

The patent discloses a method to treat neoplastic disease characterised
by expression of fms-like tyrosine kinase 4 (Flt4) receptor (also
referred as vascular endothelial growth factor receptor-3, VEGFR-3) in
endothelial cells of blood vessels adjacent to malignant neoplasm. The
method involves administering a compound that inhibits binding of a
ligand to Flt4 thereby inhibiting Flt4 mediated proliferation of vascular
endothelial cells. The compound is useful for treating neoplastic disease
such as breast carcinomas, squamous cell carcinomas, lymphomas, melanomas
and sarcomas. Flt4 receptor tyrosine kinase binding compounds can be used
for manufacturing medicament useful for diagnostic screening, imaging and
treatment of malignancies characterised by Flt4-expressing blood cells.
The Flt4 gene maps to chromosomal region 5q35 and is expressed as 5.8 kb
and 4.5 kb mRNAs which differ in their 3' sequences and are
differentially expressed in HEL and DAMI cell lines. Flt4
belongs to a subfamily of class III receptor tyrosine kinases (RTKs).
It is used as a target for tumour imaging and anti-tumour therapy.
The present sequence is a human prepro-vascular endothelial growth
factor C (VEGF-C), a specific example of Flt4 binding compound.

Sequence 419 AA:

Query Match 97.9%; Score 410; DB 21; Length 419;
Best local Similarity 100.0%; Pred. No. 0;
Matches 410; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
OY 4 LCFPSVACSLAAALPGREAPAAAFESGLDLDAPDAGEATAYASKDLEQLRSV 63
DB 4 lcfpsvacslaaalpgreapaaafesglldlapdageatayaskdleeqlrsv 63
OY 64 SSVDELMTVLYPEYWKMYRCQLRKGGWQHNRQANINSTRTEETIKFAAHYNTILKSID 123
DB 64 ssvdelmtvlypeywkmyrcqlrkggwqhnrqaninstrteetikfaahyntelkssid 123
OY 124 NEMRKTCMPREVCIDVGKEFGVATNTFFKPPCVSVYRCGGCCNSBGLQCMNTSTSLK 183
DB 124 newrkqcmprcvcldvgefgvatntffkppcvsvyrcggcnsbglqcmntstslsk 183
OY 184 TLFETVPLSOGPKPYTISFANHTSCRCMSKLDVYRQVHSIIRSLPATLPQCAANKTC 243
DB 184 tlfetvplsogpkpytisfanhtscrcmskldvyrqvhsilrslpatlpqcaanktc 243
OY 244 PTNYMNNHICRCLAQEDFMFSSDAGDSDTDGPHDICGNKELDEFTCCQVCRAGLRPAS 303
DB 244 ptnymnnhicroclaqedfmfssdagdsdtdgphdicgnkeldeftccqvcraglrpas 303
OY 304 CGPHKELDNSQCVCNKLFPSCGAGNREPENTCCQVCKRTPCPRNOPLNPQKACCECT 363
DB 304 cgphkeldnscqvcnklfpscgaanrepentccqvcckrtcpnnglmpqkacect 363
OY 364 ESPQCKLKGKRFHHQTCSCYRPPCTNRKACBPFGSYSEEVCRCPYSW 413
DB 364 espqcklkgkrfhhqtcscyrppctnrkacbpfgsyseevcrcpsyw 413
```

RESULT 12

```
AAV70982
ID AAV70982 standard; Protein: 419 AA.
XX
AC AAV70982;
```

DT 09-AUG-2000 (first entry)
XX Human vascular endothelial growth factor (VEGF)-C protein.
XX
XX Vascular endothelial growth factor-C; VEGF: human; re-endothelialisation;
KM vascular endothelial growth factor receptor; VEGFR; vascular trauma;
KM blood vessel; cardiovascular surgery; anti-restenosis agent; prevention;
KM restenosis; stenosis; percutaneous transluminal coronary angioplasty.
XX
XX Homo sapiens.
OS
XX
FH Key Location/Qualifiers
FH Peptide 1..31 /label= Signal_peptide
FT /note= "Cleavage results in partially-processed VEGF-C
FT protein (29 kD)"
FT 32..103
FT Peptide /label= Amino terminal peptide
FT /note= "Cleavage results in fully-processed mature
FT VEGF-C protein (21-23 kD)"
FT 104..227
FT Protein /label= Mature_human_VEGF-C
FT /note= "Processed vascular epithelial growth factor-C"
FT 83
FT Binding-site /note= "Essential for VEGFR-2 and VEGFR-3 binding"
FT 131..211
FT Active-site /note= "Essential for biological activity of protein"
FT 137
FT Binding-site /note= "Essential for VEGFR-2 and VEGFR-3 binding"
FT 156
FT Binding-site /note= "Essential for VEGFR-2 binding"
FT 165
FT Binding-site /note= "Essential for VEGFR-2 and VEGFR-3 binding"
FT 228..419
FT Peptide /label= Carboxy-terminal peptide
FT /note= "Cleavage results in partially-processed VEGF-C
FT protein (29 kD)"
XX
XX MO200024412-A2.
XX
XX 04-MAY-2000.
XX
XX PD
XX
XX 26-OCT-1999; 99MO-US24054.
XX
XX PR 26-OCT-1998; 98US-0105587.
XX
XX PA (LUDW-) LUDWIG INST CANCER RES.
XX (UYHE-) UNIV HELSINKI LICENSING LTD OY.
XX PA (YLAH/) YLA-HERTUULA S.
XX
XX PI Yla-herttuala S, Alltalo K, Hiltunen MO, Jeltsch MM, Achen MG;
XX
XX DR MPI; 2000-350584/30.
XX DR N-PSDB; AAD00339, AAD00353.
XX
XX PT Preventing stenosis and restenosis in mammals using vascular
XX endothelial growth factor proteins or the nucleic acids encoding them -
XX
XX PS Claim 5; Page 51-53; 61pp; English.
XX
XX The present amino acid sequence is the complete human prepro-vascular
XX endothelial growth factor (VEGF)-C. VEGF-C has the ability to stimulate
XX re-endothelialisation of an injured blood vessel, without significant
XX stimulation of smooth muscle cell proliferation. It can bind to and
XX stimulate VEGFR-2 (vascular endothelial growth factor receptor) and/or
XX VEGFR-3 phosphorylation in cells that express such receptors. An
XX anti-restenosis agent comprising either a VEGF-C gene or protein is
XX used in a method to reduce or prevent restenosis and stenosis of a blood
XX vessel following vascular trauma e.g., cardiovascular surgery and
XX percutaneous transluminal coronary angioplasty.
XX
XX Sequence 419 AA;

Query Match 97.9%; Score 410; DB 21; Length 419;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 410; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
OY 4 LGFSSVACSLAALLEGPREAPAAAAAFESGLDLSDAEPAGANTAYASKDEQLRSV 63
DB 4 LGfsvacsllaaalppreapaaaaafesglidsdaepagataysakdleqlrsv 63
OY 64 SSVDELMTVLYPEYKWKYKCOLRKGMQHNREOANLNSRPEETIKFAAHYTEILKSID 123
DB 64 ssvdelmtvlypeywmkycqllrkqgmhneqanlnsrteetlkfaahyntelksid 123
OY 124 NEWBKTCMPREVCIDVGEFVATNTEFKPPCVSVYRCGCCNSEGLQCNNTSTYLSK 183
DB 124 newbktdcmprveidvgkefvalntffkppcvsvyrcgcnseglqcnmtstyslsk 183
OY 184 TLEFRTYPLSGRPVYITSPFNHTSCRCMSKLDVYRQVHSTIRSLPATLPQCAANKTC 243
DB 184 tlelrvlsggprvltstfnhtscrcmskldivryvhsllrslpatlpqcaanktc 243
OY 244 PTNYMMNNHICRCLAQEDFMFSSDAGDSTDFHIDICGPNKELDEETCCVCYRAGLRPAS 303
DB 244 ptnymnnhicrlaqedfmfssdagdstdfidicgpnkeldeetccvcyraglrpas 303
OY 304 CGPHKELDRNSCQVCVCKNKLFPSSCGANREFDEMTCCVCCKRTCPRNQPLNPGACECT 363
DB 304 cgphekeldrnsqvcvcknkllfsscganrefdentccvcckrtcprnpgkacect 363
OY 364 ESPQCLLKGGKHHQRCRRRRCCTNRORACEGFSYSEVCVCSYV 413
DB 364 espqcllkggkhhqrcscrrrrcctnrorkacegfsysevcvcsyvw 413
RESULT 13
ID AAB37605
ID AAB37605 standard; Protein: 419 AA.
XX
XX AC AAB37605;
XX
XX DT 27-FEB-2001 (first entry)
XX
XX DE Human VEGF-C.
XX
XX KM Human; gene therapy; lymphatic disorder; hereditary lymphoedema; FL4;
XX KM vascular endothelial growth factor receptor-3; VEGFR-3; VEGF-C; VEGF-D;
XX KM fms-like tyrosine kinase 4.
XX
XX OS Homo sapiens.
XX
XX XX
XX PN CA2283470-A1.
XX
XX PD 26-SEP-2000.
XX
XX PF 29-SEP-1999; 99CA-2283470.
XX
XX PR 26-MAR-1999; 99MO-US06133.
XX PR 16-AUG-1999; 99US-0375248.
XX
XX PA (UYPI-) UNIV PITTSBURGH.
XX PA (UYHE-) UNIV HELSINKI LICENSING LTD OY.
XX PA (LUDW-) LUDWIG INST CANCER RES.
XX
XX PI Alltalo K, Ferrell RE, Finegold DN, Karhainen M;
XX
XX DR MPI; 2001-007762/02.
XX DR N-PSDB; AAC68953.
XX
XX PT Screening a human for an increased risk of developing lymphatic
XX disorder comprises assaying nucleic acid for alterations in the
XX PT sequences expressing vascular endothelial growth factor receptor-3 -
XX
XX PS Disclosure; Pages 62-63; 99pp; English.

XX The present invention relates to a method for screening a human subject
CC for an increased risk of developing a lymphatic disorder e.g. hereditary
CC lymphoedema. The method comprises assaying nucleic acid of a human
CC subject to determine a presence or an absence of a mutation altering the
CC sequence or expression of vascular endothelial growth factor receptor-3
CC (VEGFR-3)/fms-like tyrosine kinase 4 (Flt4) allele (see AAC68952 and
CC AAB37604) and determining an increased risk of developing lymphatic
CC disorder from presence or absence of the mutation. The presence of a
CC mutation altering the encoded amino acid sequence or expression of at
CC least 1 VEGFR-3 allele in the nucleic acid correlates with an increased
CC risk of developing a lymphatic disorder. Treatment for hereditary
CC lymphoedema can be provided through the administration of vascular
CC endothelial growth factor C (VEGF-C) and vascular endothelial growth
CC factor D VEGF-D genes (via gene therapy) and proteins. The present
CC sequence is the protein sequence for VEGF-C.
XX
SQ Sequence 419 AA:

Query Match 97.9%; Score 410; DB 22; Length 419;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 410; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 4 LCFPSVACSLAALLPGREAPAAAAAFESGLDSDAEPDAGEATAYASKDLEQLRSV 63
DB 4 lffsvacsl1laa11ppreapaaafesgldsdadepdaageatayaskdleqlrsv 63
OY 64 SSVDELMTVLYPEYWMYKCOLRKGMHNRQANLNSTEETIRKFAAHYNTLEIKSID 123
DB 64 ssvdelmtvlypeywmkycolrkghmnrqanlnsteeetirkaahyntleiksid 123
OY 124 NEMRKTQCMPREVCIDVGEKFGVATNTEFKPCVSVYRCGGCNSGLQCMNTSTYLSK 183
DB 124 newrktqcmprcvcidvgekfvgatntefkpcvsvyrcggcnsesglqcmntstyslk 183
OY 184 TTFEITVPLSQGPKPYTISFANHTSCRCMSKLDYRQVHSITRRSLPATLPQQAANKTC 243
DB 184 ttfeltvplsqgpkpytisfanhtscrcmskldyrvhsitrrslpatlpqqaanktc 243
OY 244 PTNYMNNHICICLAOEDFMFSSDAGDDSTDFHDCGNKLEDEETCCVCVRAGLRPAS 303
DB 244 ptnymnnhiciclaedfmfssdagddstdfhdcgnkledetccvcvraglrpas 303
OY 304 CGPHELDNRNSQCVCKNKLFPSCGAGNREFDENTCQVCCKRTCPRNQPLNPGKACCECT 363
DB 304 cgpheldnrnsqcvcknklfpscgaanrefdentcqcvcckrtcprnqplnpgkacect 363
OY 364 ESPQCKLAKGKRFHQTGSCYRRPCTNRKACPEPFSYSEEVCRVPSYW 413
DB 364 espqckllkgkrfhqtgscyrtrpctnrkacepgfsyseevcrvpsyw 413

RESULT 14
AAM86237
ID AAM86237 standard; protein; 399 AA.
XX
XX AAM86237;
XX
XX 16-FEB-1999 (first entry)
XX
XX Human VEGF-C full length sequence.
XX
XX VEGF: VRP; vascular endothelial growth factor; VEGF-related protein;
XX recombinant; truncated; gene therapy; angiogenesis; cardiac ischaemia;
XX coronary; collateral vessel development; cell growth; migration; heart;
XX lower limb ischaemia; stroke; peripheral vascular disease; intestine;
XX wound healing; skin; vascular permeability.
XX
XX Homo sapiens.
XX
XX MO9849300-A2.
XX
XX

PD 05-NOV-1998.
XX
XX 20-APR-1998; 98WO-US07801.
XX
XX 25-APR-1997; 97US-0842984.
XX
XX (COLL-) COLLATERAL THERAPEUTICS.
XX
XX Bohlen P;
XX
XX WPI; 1999-009426/01.
XX
XX The invention relates to truncated VRP (vascular endothelial growth
XX factor (VEGF)-related protein) subunits that have at least one amino
XX acid N-terminal to the first Cys of the core sequence deleted. Host
XX cells transformed or transfected with expression vectors containing
XX nucleic acids encoding the truncated VRP subunits are used to produce
XX the truncated proteins recombinantly. The truncated VRP subunits,
XX optionally expressed from gene therapy vectors, have in vivo and in vitro
XX angiogenic activity and are used to stimulate angiogenesis, particularly
XX coronary collateral vessel development in cases of cardiac ischaemia; to
XX stimulate endothelial cell growth and migration in vitro; to treat heart
XX disease; to treat ischaemia (e.g. cardiac, chronic coronary or chronic
XX lower limb ischaemia, stroke and peripheral vascular disease); to promote
XX healing of wounds (of skin or intestines), and to increase vascular
XX permeability. Sequences AAM86234 to AAM86239 represent full length VRP
XX sequences from which the truncated fragments are created.
XX
SQ Sequence 399 AA:

Query Match 93.8%; Score 393; DB 20; Length 399;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 393; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 21 GREAPAAAAAFESGLDSDAEPDAGEATAYASKDLEQLRSVSSVDELMTVLYPEYWM 80
DB 1 greapaaaaafesgldsdadepdaageatayaskdleqlrsvssvdelmtvlypeywm 80
OY 81 YKCOLRKGMHNRQANLNSRTEETIRKFAAHYNTLEIKSIDNEMRKTQCMPREVCIDY 140
DB 61 ykcolrkghmnrqanlnsteeetirkaahyntleiksidnemrktqcmprvcidv 120
OY 141 GKEFGVATNTEFKPCVSVYRCGGCNSGLQCMNTSTYLSKTLEITVPLSQGPKPYT 200
DB 121 gkefvgatntefkpcvsvyrcggcnsesglqcmntstyslktleltvplsqgpkpyt 180
OY 201 ISFANHTSCRCMSKLDYRQVHSITRRSLPATLPQQAANKTCPTNYMNNHICICLAOE 260
DB 181 isfanhtscrcmskldyrvhsitrrslpatlpqqaanktcptnymnnhiciclae 240
OY 261 DFMFSSDAGDDSTDFHDCGNKLEDEETCCVCVRAGLRPASCGHKELDNRNSQCVCK 320
DB 241 dfmfssdagddstdfhdcgnkledetccvcvraglrpasgchkeleldnrnsqcvck 300
OY 321 NKLPFSOGAGNREFDENTCQVCCKRTCPRNQPLNPGKACCECTESPQCKLAKGKRFHQT 380
DB 301 nklfpsogagnrefdentcqcvcckrtcprnqplnpgkacectespqckllkgkrfhgt 360
OY 381 GSCYRRPCTNRKACPEPFSYSEEVCRVPSYW 413
DB 361 gscyrtrpctnrkacepgfsyseevcrvpsyw 393

RESULT 15
AAY30519
ID AAY30519 standard; Protein; 350 AA.
XX
XX

XX
AC AAY30519;
XX
DT 16-NOV-1999 (first entry)
XX
DE A truncated vascular endothelial growth factor-2.
XX
KW Human vascular endothelial growth factor-2; VEGF-2;
KW vascular endothelial cell growth; endothelial cell migration;
KW angiogenesis; blood pressure; blood flow; immune system disorder;
KW immune cell; cancer; autoimmune disorder; blood protein disorder;
KW ataxia telangiectasia; common variable immunodeficiency;
KW DiGeorge syndrome; HIV infection; HTLV-BLV infection;
KW leukocyte adhesion deficiency syndrome; lymphopenia;
KW phagocyte bactericidal dysfunction; severe combined immunodeficiency;
KW Wiskott-Aldrich disorder; anemia; thrombocytopenia; hemoglobinuria;
KW allergy; asthma; allergic asthma.
XX
OS Homo sapiens.
XX
PN MO946364-A1.
XX
PD 16-SEP-1999.
XX
PF 10-MAR-1999; 99MO-US05021.
XX
PR 13-MAR-1998; 98US-0042105.
PR 30-JUN-1998; 98US-0107997.
XX
PA (HUMA-) HUMAN GENOME SCI INC.
PI Rosen CA, Cao L, Hu J;
DR MPI; 1999-551399/46.
DR N-PSDB; AA210524.
XX
PT New human vascular endothelial growth factor-2, used for treating, e.g.
PT immune disorders and cancers -
XX
PS Example 2; Fig 2A-D; 222pp; English.
XX
CC The present sequence represents a truncated, biologically active form
CC of human vascular endothelial growth factor-2 (VEGF-2). The VEGF-2
CC polypeptides have activities similar to VEGF. The VEGF-2 polypeptides
CC stimulate the growth of vascular endothelial cells, stimulate endothelial
CC cell migration, stimulate angiogenesis, decrease blood pressure, and
CC increase blood flow. The polynucleotides and polypeptides can be used
CC for preventing, treating or ameliorating a medical condition. The
CC VEGF-2 polypeptides or polynucleotides may be useful in treating
CC deficiencies or disorders of the immune system, by activating or
CC inhibiting the proliferation, differentiation, or mobilization
CC (chemotaxis) of immune cells. The etiology of these immune deficiencies
CC or disorders may be genetic, somatic, such as cancer or some autoimmune
CC disorders, acquired (e.g. by chemotherapy or toxins), or infectious.
CC Examples of immunologic deficiency syndromes include blood protein
CC disorders, ataxia telangiectasia, common variable immunodeficiency,
CC DiGeorge syndrome, HIV infection, HTLV-BLV infection, leukocyte adhesion
CC deficiency syndrome, lymphopenia, phagocyte bactericidal dysfunction,
CC severe combined immunodeficiency (SCIDS), Wiskott-Aldrich disorder,
CC anemia, thrombocytopenia, or hemoglobinuria. They can also be used to
CC modulate emostatic or thrombolytic activity. Similarly allergic reactions
CC and conditions such as asthma (particularly allergic asthma) or other
CC respiratory problems, may also be treated.
XX
SO Sequence 350 AA;

Query Match 83.5%; Score 350; DB 20; Length 350;
Best local Similarity 100.0%; Pred. No. 0;
Matches 350; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 70 MFLVLPBYWKKMYCQLRKGGWQHNRGANLNSRTETIKFAAHYNTIELKSIDNEWRKT 129
|||||

Db 1 mtvlypeywkmykcqlrkggwqhnrqanlnsrteelikfaahyntellksidnewrkc 60
OY 130 OCMPREVCIDVGKKEFGVATNTFFKPPCVSVYRCGGCCNSBGLQCMNTSTYLSLTLEIR 189
Db 61 qcmprcvldvgkelfgvantllfkppcvsvyrcggccnseglqcmntstyslsltleit 120
OY 190 VPLSQGPRPVITISFANHTSCRCMSKLDVYRQVHSIIIRSLPATLPQCAANKTCPTNYMW 249
Db 121 vplsqgprpvitisanhtscrcmskldvyrvqhsilrrslpatlpgqqaanktcptnymw 180
OY 250 NNHICRCLAQEDFWFSSDAGDDSTDGFHDICGPNKELDEETCCQVCRAGLRPASGPHKE 309
Db 181 nnhicrcclaqedfwfssdagddstldgfhdicgpnkeldeetcqvcraglrpasgphke 240
OY 310 LDRNSCCVCNKNLFPSCGANREFDENTCQCCKRTCPRNOPLPNGKACECTESPQXC 369
Db 241 ldrrnsccvcnknlfpscganrefdentcqcckrtcprnoplpgkacectespqxc 300
OY 370 LNRGKRFPHQTCSCYRRPCTNRQACBPFGFSSEWCRVPSYWQRPQMS 419
Db 301 lnrgrkrfphqtcscyrpctnrqacbpfgfssewcrvpsywqrpqms 350

Search completed: November 15, 2001, 10:07:12
Job time: 44 sec

4 . 119

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: November 15, 2001, 10:06:28 ; Search time 25.79 Seconds

(without alignments)
1237.578 Million cell updates/sec

Title: US-09-257-272-2

Perfect score: 419
Sequence: 1 MHSIGFSSVACSLLAALLP.....SYSEVGRVPSYMQRPQMS 419

Scoring table:
Gapop 60.0 , Gapext 60.0

Searched: 219241 seqs, 76174552 residues

Word size : 30

Total number of hits satisfying chosen parameters: 1

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Listing first 45 summaries

Database : PIR_68:*

1: PIR1: *
2: PIR2: *
3: PIR3: *
4: PIR4: *

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description	
1	410	97.9	419	2	569207	vascular endothel

ALIGNMENTS

RESULT 1
569207
vascular endothelial growth factor C precursor - human
N:Alternate names: Flt4 ligand DHM
C:Species: Homo sapiens (man)
C:Date: 27-Apr-1996 #sequence-revision 01-Nov-1996 #text-change 08-Oct-1999
C:Accession: S69207; S61795; S71443; S69208; G02659
R:Joukov, V.; Pajusola, K.; Kaipainen, A.; Chillov, D.; Lahtinen, I.; Kukk, E.; Saksela, EMO J. 15, 1751, 1996
A:Title: Corrigendum: A novel vascular endothelial growth factor, VEGF-C, is a ligand for
A:Reference number: S69207; MUID:96203094
A:Accession: S69207
A:Status: nucleic acid sequence not shown
A:Molecule type: mRNA
A:Residues: 1-419 <JOU>
A:Cross-references: EMBL:X94216; NID:g11177488; PIDN:CAA63907.1; PID:e221096; PID:g118200
A:Note: the nucleotide sequence was submitted to the EMBL Data Library, December 1995
A:Note: only a part of the translation is shown
A:Note: this is a revision to the sequence from reference S61795
R:Joukov, V.; Pajusola, K.; Kaipainen, A.; Chillov, D.; Lahtinen, I.; Kukk, E.; Saksela, EMO J. 15, 290-298, 1996
A:Title: A novel vascular endothelial growth factor, VEGF-C, is a ligand for the Flt4 (V
A:Reference number: S61795; MUID:96178224

A:Accession: S61795
A:Status: nucleic acid sequence not shown; not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 70-419 <JOU1>
A:Note: this sequence has been revised in reference S69207
A:Accession: S71443
A:Molecule type: protein
A:Residues: 'X', 104-120 <JOU2>
R:Lee, J.; Gray, A.; Yuan, J.; Luo, S.M.; Avraham, H.; Wood, W.I.
A:Description: Vascular endothelial growth factor related protein (VRP): A ligand and
submitted to the EMBL Data Library, December 1995
A:Reference number: S69208
A:Accession: S69208
A:Molecule type: mRNA
A:Residues: 1-419 <LEE>
A:Cross-references: EMBL:U43142; NID:g1150988; PIDN:AA85214.1; PID:g1150989
R:Morris, J.C.
submitted to the EMBL Data Library, May 1996
A:Reference number: H01557
A:Accession: G02659
A:Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 1-419 <MOR>
A:Cross-references: EMBL:U58111; NID:g1373426; PIDN:AAB02909.1; PID:g1373427
C:Gene: GDB:VEGFC; VRP
A:Gene: GDB:VEGFC; VRP
A:Cross-references: GDB:3890883; OMIM:601528
F:1-12/Domain: signal sequence #status predicted <SIG>
F:13-102/Domain: propeptide #status predicted <PRO>
F:103-419/Product: vascular endothelial growth factor C #status experimental <MAT>

Query Match 97.9%; Score 410; DB 2; Length 419;
Best local similarity 100.0%; Pred. No. 0;
Matches 410; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 4 LGFFSVACSLLAALLPGPREAPAAAAAFESGLDLSDEPDAGEAFAVASKDLEOLRSV 63
DB 4 LGFFSVACSLLAALLPGPREAPAAAAAFESGLDLSDEPDAGEAFAVASKDLEOLRSV 63
QY 64 SSVDLMTVLYPEYKWKYKCOLRRGGQHRBOANLSRFEETIKFAAAYNTREIISKSD 123
DB 64 SSVDLMTVLYPEYKWKYKCOLRRGGQHRBOANLSRFEETIKFAAAYNTREIISKSD 123
QY 124 NEMRKTQCMREYCIDVGKEFGVATNTFFKPCVSVYRCGCCNSEGLQCMNTSTYLSK 183
DB 124 NEMRKTQCMREYCIDVGKEFGVATNTFFKPCVSVYRCGCCNSEGLQCMNTSTYLSK 183
QY 184 TLFETIVPLSQGPKPVITISFANHTSCRCMSKLDVYRQVHSIIRSLPATLPGCOAANKTC 243
DB 184 TLFETIVPLSQGPKPVITISFANHTSCRCMSKLDVYRQVHSIIRSLPATLPGCOAANKTC 243
QY 244 PTNYMMNNHICRLAODEPFSSDAGDSDTDFHICGPKKELDEETCCQVCRAIRPAS 303
DB 244 PTNYMMNNHICRLAODEPFSSDAGDSDTDFHICGPKKELDEETCCQVCRAIRPAS 303
QY 304 CGPHKEIDRRNSCCQVCNKKLFPSQCGANREFDENTOCQVCRTCPRNQPLNPKCACECT 363
DB 304 CGPHKEIDRRNSCCQVCNKKLFPSQCGANREFDENTOCQVCRTCPRNQPLNPKCACECT 363
QY 364 ESPQKCLLGGKRFHQTSCYRRPCTNRKACBPGFSYSEVGRVPSYW 413
DB 364 ESPQKCLLGGKRFHQTSCYRRPCTNRKACBPGFSYSEVGRVPSYW 413

Search completed: November 15, 2001, 10:07:43
Job time: 75 sec

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: November 15, 2001, 10:06:28 ; Search time 16.77 seconds
(without alignments)

855,876 Million cell updates/sec

Title: US-09-257-272-2

Perfect score: 419
Sequence: 1 MHSIGFVSACSLAALLP.....SYSEVGRVPSYWRQPMQS 419

Scoring table: OLIGO
Gapop 60.0 , Gapext 60.0

Searched: 93435 seqs, 34255486 residues

Word size : 30

Total number of hits satisfying chosen parameters: 2

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Listing first 45 summaries

Database : SWISSPROT_39:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	410	97.9	419	1	VEGC_HUMAN
2	68	16.2	415	1	VEGC_MOUSE

ALIGNMENTS

RESULT 1
ID VEGC_HUMAN STANDARD: PRT: 419 AA.
AC P49767;
DT 01-OCT-1996 (rel. 34, Created)
DT 01-OCT-1996 (rel. 34, Last sequence update)
DT 01-OCT-2000 (rel. 40, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR C PRECURSOR (VEGF-C) (VASCULAR
DE ENDOTHELIAL GROWTH FACTOR RELATED PROTEIN) (VRP) (FLT4 LIGAND) (FLT4-
L)
GN VEGF-C.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN (1)
RP SEQUENCE FROM N.A. AND SEQUENCE OF 103-120.
RX MEDLINE=96178224; PubMed=8617204;
RA Joukov V., Pajusola K., Kaipainen A., Chillov D., Lahtinen I., Kuk E.,
RA Saksela O., Kalkkinen N., Allitalo K.;
RT "A novel vascular endothelial growth factor, VEGF-C, is a ligand for
RT the Flt4 (VEGFR-3) and KDR (VEGFR-2) receptor tyrosine kinases.";
RL EMBO J. 15:290-298(1996).
RN (2)
RP ERRATUM.
RX MEDLINE=96203094; PubMed=8612600;

RA Joukov V., Pajusola K., Kaipainen A., Chillov D., Lahtinen I., Kuk E.,
RA Saksela O., Kalkkinen N., Allitalo K.;
RL EMBO J. 15:1751-1751(1996).
RN (3)
RP SEQUENCE FROM N.A.
RX MEDLINE=96312526; PubMed=8700872;
RA Lee J., Gray A., Yuan J., Luo S.-M., Avraham H., Wood W.T.;
RT "Vascular endothelial growth factor-related protein: a ligand and
RT specific activator of the tyrosine kinase receptor Flt4.";
RL Proc. Natl. Acad. Sci. U.S.A. 93:1988-1992(1996).
RN (4)
RP SEQUENCE FROM N.A.
RA Filiz L., Morris J.C., Towler P.S., Long A.J., Greco R.,
RA Burgess P., Giannotti J., Claretta A., Hennessey D., Kovacic S.,
RA Fitzgerald M., Scaltrelo H., Welch N., Neben S., Flinerty H.,
RA Zolner R., Wang J., Nickbarg E., Gassaway R., Turner K.,
RA Wood C.R.;
RL Submitted (JUN-1996) to the EMBL/GenBank/DBJ databases.
CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
CC CELL GROWTH.
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
CC -1- PTM: PROBABLY PROTEOLITICALLY PROCESSED IN THE C-TERMINUS.
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
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CC or send an email to license@isb.slb.ch).
CC
CC EMBL: X94216; CAA63907.1; -
CC EMBL: U43142; AAB85214.1; -
CC EMBL: U58111; AAB02909.1; -
CC HSSP: P15692; 1VPF.
CC MIM: 601528; -
DR InterPro: IPR000072; -
DR InterPro: IPR002400; -
DR Pfam: PF00341; PDGF_1.
DR PRINTS: PR00438; GFCYSKNOT.
DR PROSITE: PS00249; PDGF_1; 1.
DR PROSITE: PS0278; PDGF_2; 1.
KW Mitogen; Growth factor; Glycoprotein; Signal; Repeat.
FT SIGNAL 1 ?
FT PROPEP 102
FT CHAIN 103 419 VASCULAR ENDOTHELIAL GROWTH FACTOR C.
FT DOMAIN 275 365 4 X 24 AA TANDEN REPEATS.
FT REPEAT 275 298 1.
FT REPEAT 299 322 2.
FT REPEAT 323 346 3.
FT REPEAT 347 365 4 (PARTIAL).
FT CARBOHYD 175 175 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 205 205 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 240 240 N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ SEQUENCE 419 AA; 46883 MW; 9F598719DB3E014F CRC64;

Query Match 97.9%; Score 410; DB 1; Length 419;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 410; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 4 LGFFSVACSLAALLPGPREAPAAAAAAGSSGDLSPAEPDAGEATVAVSKDLEBOLRSV 63
DB 4 LGFFSVACSLAALLPGPREAPAAAAAAGSSGDLSPAEPDAGEATVAVSKDLEBOLRSV 63

OY 64 SSYDELMTVLYPEYKWKYKCOLRRKGWQHNREOANLSRTETIKRPAAHYNTETILKSID 123
DB 64 SSYDELMTVLYPEYKWKYKCOLRRKGWQHNREOANLSRTETIKRPAAHYNTETILKSID 123

OY 124 NEWKTKQCMREVCIDYKKEFGVATNTFFKPCVSYVYRCGCCNSBGLQCMNTSTYLSK 183
DB 124 NEWKTKQCMREVCIDYKKEFGVATNTFFKPCVSYVYRCGCCNSBGLQCMNTSTYLSK 183

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OY 184 TLEFETVPLSOGPKPVTTISFANHSTCRMSKLDVYRQVHSITRRSLPATLPQCOAANKTC 243
DB 184 TLEFETVPLSOGPKPVTTISFANHSTCRMSKLDVYRQVHSITRRSLPATLPQCOAANKTC 243
OY 244 PPNYMMNNHICICLQAEPMFSSDAGDDSTDSGFHDICGNKRLDETCQCYCVRAGIRPAS 303
DB 244 PPNYMMNNHICICLQAEPMFSSDAGDDSTDSGFHDICGNKRLDETCQCYCVRAGIRPAS 303
OY 304 CGPHKELDRNSOCVCYCKNKLFPSCGANEPEDENTCQCCKRTPCRNOPLNPGKACCECT 363
DB 304 CGPHKELDRNSOCVCYCKNKLFPSCGANEPEDENTCQCCKRTPCRNOPLNPGKACCECT 363
OY 364 ESPQCLLKGGKFFHHQTCSCYRRPCTNRKACEPGRSYSEEVCRVPSYW 413
DB 364 ESPQCLLKGGKFFHHQTCSCYRRPCTNRKACEPGRSYSEEVCRVPSYW 413

RESULT 2
VEGC_MOUSE STANDARD: PRT: 415 AA.
ID VEGC_MOUSE STANDARD: PRT: 415 AA.
AC P97953;
DT 15-JUL-1998 (Rel. 36, Created)
DT 15-JUL-1998 (Rel. 36, Last sequence update)
DT 30-MAY-2000 (Rel. 39, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR C PRECURSOR (VEGF-C) (FLT4 LIGAND)
DE (FLT4-L).
GN VEGFC.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=BAIB/C;
RX MEDLINE=97164697; PubMed=9012504;
RA Kukk E., Lymbousaki A., Taira S., Kaipainen A., Jeltsch M.,
RA Joukov V., Alitalo K.;
RT "VEGF-C receptor binding and pattern of expression with VEGFR-3
RT suggests a role in lymphatic vascular development.";
RL Development 122:3829-3837(1996).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=BAIB/C;
RX MEDLINE=97388482; PubMed=9247316;
RA Fitz L.J., Morris J.C., Towler P., Long A., Burgess P., Greco R.,
RA Wang J., Gassaway R., Nickbarg E., Kovacic S., Ciavarella A.,
RA Giannotti J., Flinerty H., Zollner R., Belier D.R., Leak L.V.,
RA Turner K.J., Wood C.R.;
RT "Characterization of murine Flt4 ligand/VEGF-C.";
RL Oncogene 15:613-618(1997).
CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
CC CELL GROWTH.
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED (BY SIMILARITY).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
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CC or send an email to license@isb-sib.ch).
CC
DR EMBL: U73620; AAC52984.1; -
DR EMBL: U58112; AAB46707.1; -
DR HSSP: P15692; IVPF.
DR MGD: MGI:109124; Vegfc.
DR InterPro: IPR000072; -
DR InterPro: IPR002400; -
DR Pfam: PF00341; PDGF_1.
DR PRINTS: PRO0438; GRCYSKNOT.
DR PROSITE: PS00249; PDGF_1; 1.

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DR PROSITE: PS50278; PDGF_2; 1.
KW Mitogen; Growth factor; Glycoprotein; Signal; Repeat.
FT SIGNAL 1 98
FT PROPEP 2 98
FT CHAIN 99 415
FT DOMAIN 271 361
FT REPEAT 271 294
FT REPEAT 295 318
FT REPEAT 319 342
FT REPEAT 343 361
FT CARBOHYD 171 171
FT CARBOHYD 201 201
FT CARBOHYD 236 236
SQ SEQUENCE 415 AA; 46471 MW; D9D3DD3CBCC659D6 CRC64;

Query Match 16.2%; Score 68; DB 1; Length 415;
Best Local Similarity 100.0%; Pred. NO. 2.1e-59;
Matches 68; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 180 YLSKTLFEITVPLSOGPKPVTTISFANHSTCRMSKLDVYRQVHSITRRSLPATLPQCOA 239
DB 176 YLSKTLFEITVPLSOGPKPVTTISFANHSTCRMSKLDVYRQVHSITRRSLPATLPQCOA 235
OY 240 NKTCPNTY 247
DB 236 NKTCPNTY 243

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Search completed: November 15, 2001, 10:08:54
Job time: 146 sec

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OM protein - protein search, using sw model

Run on: November 15, 2001, 10:06:28 ; Search time 40.97 seconds
(without alignments)
1353.083 Million cell updates/sec

Title: US-09-257-272-2

Perfect score: 419
Sequence: 1 MHSLGFFSVACSLUALALP.....SYSEVCRVPSYWRPQMS 419

Scoring table: OLIGO
Gapop 60.0 , Gapext 60.0

Searched: 425026 seqs, 132305027 residues

Word size : 30

Total number of hits satisfying chosen parameters: 3

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Listing first 45 summaries

Database : SPTREMBL.16:*
1: sp-archaea:*
2: sp-bacteria:*
3: sp-fungi:*
4: sp-human:*
5: sp-invertebrate:*
6: sp-mammal:*
7: sp-mhc:*
8: sp-organelle:*
9: sp-phage:*
10: sp-plant:*
11: sp-rodent:*
12: sp-unclassified:*
13: sp-vertebrate:*
14: sp-virus:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	65	15.5	126	11	035757
2	60	14.3	420	6	09XS50
3	31	7.4	418	13	057352

ALIGNMENTS

RESULT 1
035757
ID 035757
AC 035757
DT 01-JAN-1998 (TREMBlrel. 05, Created)
DT 01-JAN-1998 (TREMBlrel. 05, last sequence update)
DE 01-MAR-2001 (TREMBlrel. 16, last annotation update)
OS VASCULAR ENDOTHELIAL GROWTH FACTOR-C (FRAGMENT).
OC Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.

OX NCBI_TaxID=10116;
[1]
RP SEQUENCE FROM N.A.
RC STRAIN-SPRAGUE-DAWLEY; TISSUE=LUNG;
RA Mandriola S.J., Pepper M.S.;
RL Submitted (JUN-1997) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF010302; AAB63248.1; -
DR HSSP; P15692; 2VPE.
DR InterPro: IPR000072; -
DR pfam: PF00341; PDGF_1.
DR PROSITE: PS0278; PDGF_2; 1.
DR SMART; SM00141; PDGF; 1.
FT NON_TER 1
FT NON_TER 126
FT SEQUENCE 126 AA; 13977 MW; 8F365AFBC4E037B0 CRC64;

Query Match 15.5%; Score 65; DB 11; Length 126;
Best Local Similarity 100.0%; Pred. No. 4.9e-57;
Matches 65; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 180 YLSKTLFEITVPLSGPKPTISFANHSCRCMSKLDVYRQVHSIIRSLPATLPCQAA 239
DB 24 YLSKTLFEITVPLSGPKPTISFANHSCRCMSKLDVYRQVHSIIRSLPATLPCQAA 83
OY 240 NKTCP 244
DB 84 NKTCP 88

RESULT 2
09XS50
ID 09XS50
AC 09XS50
DT 01-NOV-1999 (TREMBlrel. 12, Created)
DT 01-NOV-1999 (TREMBlrel. 12, last sequence update)
DE 01-MAR-2001 (TREMBlrel. 16, last annotation update)
OS VASCULAR ENDOTHELIAL GROWTH FACTOR C PRECURSOR.
OC Bos taurus (Bovine).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Bovinae; Bos.
OX NCBI_TaxID=9913;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=HEART;
RA Liu X., Yonekura H., Yamagishi S., Yamamoto Y., Yamamoto H.;
RT *Structure and expression of bovine VEGF family.*;
RL Submitted (MAY-1997) to the EMBL/GenBank/DBJ databases.
DR EMBL; AB004275; BAA77687.1; -
DR HSSP; P15692; 1VPE.
DR InterPro: IPR000072; -
DR pfam: PF00341; PDGF_1.
DR PROSITE: PS00249; PDGF_1; 1.
DR PROSITE: PS50278; PDGF_2; 1.
DR SMART; SM00141; PDGF; 1.
KW Signal.
FT SIGNAL 1
FT CHAIN 21
FT SEQUENCE 420 AA; 46681 MW; 58BA84317A3C8E2D CRC64;

Query Match 14.3%; Score 60; DB 6; Length 420;
Best Local Similarity 100.0%; Pred. No. 1.4e-51;
Matches 60; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 172 OCANTSTYLSKTLFEITVPLSGPKPTISFANHSCRCMSKLDVYRQVHSIIRSLPA 231
DB 173 OCANTSTYLSKTLFEITVPLSGPKPTISFANHSCRCMSKLDVYRQVHSIIRSLPA 232

RESULT 3
057352

```

ID 057352; PRELIMINARY; PRT; 418 AA.
AC 057352;
DT 01-JUN-1998 (TRENBLREL. 06, Created)
DT 01-JUN-1998 (TRENBLREL. 06, last sequence update)
DT 01-MAR-2001 (TRENBLREL. 16, last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR C PRECURSOR.
GN VEGF-C.
OS Coturnix coturnix japonica (Japanese quail).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC Coturnix.
OX NCBI_TaxID=93934;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=98167900; PubMed=9435294;
RA Eichmann A., Corbel C., Jaffredo T., Breant V., Joukov V., Kumar V.,
RA Altaleo K., Le Douarin N.M.;
RT "Avian VEGF-C: cloning, embryonic expression pattern and stimulation
RT of the differentiation of VEGFR2-expressing endothelial cell
RT precursors.";
RL Development 125:743-752(1998).
DR EMBL: Y15837; CAA75799.1; -.
DR HSSP: P15692; 1VP.
DR InterPro: IPR000072; -.
DR InterPro: IPR002400; -.
DR Pfam: PF00341; PDGF_1.
DR PRINTS: PR00438; GFCSKNOT.
DR ProDom: PD001629; -. 1.
DR PROSITE: PS00249; PDGF_1; 1.
DR PROSITE: PS00278; PDGF_2; 1.
DR SMART: SM00141; PDGF_1.
KW SIGNAL.
FT SIGNAL 1 31
FT CHAIN 111 418 VASCULAR ENDOTHELIAL GROWTH FACTOR C.
SQ SEQUENCE 418 AA; 46839 MM; 099BFCC79151BF2B CRC64;

```

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Query Match 7.4%; Score 31; DB 13; Length 418;
Best Local Similarity 100.0%; Pred. No. 1.6e-22;
Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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```

OY 202 SFANHTSCRMKSLDYRQVHSIIRSLPAT 232
DB 201 SFANHTSCRMKSLDYRQVHSIIRSLPAT 231

```

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Search completed: November 15, 2001, 10:08:31
Job time: 123 sec

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GenCore version 4.5
Copyright (c) 1993 - 2000 Comugen Ltd.

OM protein - protein search, using sw model

Run on: November 15, 2001, 10:07:12 ; Search time 34.67 Seconds

(without alignments)
612.010 Million cell updates/sec

Title: US-09-257-272-4

Sequence: 350
1 MTVLYPEYMKWKQCKLRKGG.....SYSEEVCRCPVSPYWPQMS 350

Scoring table: OLIGO
Gapop 60.0 , Gapext 60.0

Searched: 412676 seqs, 60623988 residues

Word size : 30

Total number of hits satisfying chosen parameters: 32

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Listing first 45 summaries

Database :

A_Geneseq.0601:*

- 1: /SIDSB/gcgdata/geneseq/geneseq/AA1980.DAT:*
- 2: /SIDSB/gcgdata/geneseq/geneseq/AA1981.DAT:*
- 3: /SIDSB/gcgdata/geneseq/geneseq/AA1982.DAT:*
- 4: /SIDSB/gcgdata/geneseq/geneseq/AA1983.DAT:*
- 5: /SIDSB/gcgdata/geneseq/geneseq/AA1984.DAT:*
- 6: /SIDSB/gcgdata/geneseq/geneseq/AA1985.DAT:*
- 7: /SIDSB/gcgdata/geneseq/geneseq/AA1986.DAT:*
- 8: /SIDSB/gcgdata/geneseq/geneseq/AA1987.DAT:*
- 9: /SIDSB/gcgdata/geneseq/geneseq/AA1988.DAT:*
- 10: /SIDSB/gcgdata/geneseq/geneseq/AA1989.DAT:*
- 11: /SIDSB/gcgdata/geneseq/geneseq/AA1990.DAT:*
- 12: /SIDSB/gcgdata/geneseq/geneseq/AA1991.DAT:*
- 13: /SIDSB/gcgdata/geneseq/geneseq/AA1992.DAT:*
- 14: /SIDSB/gcgdata/geneseq/geneseq/AA1993.DAT:*
- 15: /SIDSB/gcgdata/geneseq/geneseq/AA1994.DAT:*
- 16: /SIDSB/gcgdata/geneseq/geneseq/AA1995.DAT:*
- 17: /SIDSB/gcgdata/geneseq/geneseq/AA1996.DAT:*
- 18: /SIDSB/gcgdata/geneseq/geneseq/AA1997.DAT:*
- 19: /SIDSB/gcgdata/geneseq/geneseq/AA1998.DAT:*
- 20: /SIDSB/gcgdata/geneseq/geneseq/AA1999.DAT:*
- 21: /SIDSB/gcgdata/geneseq/geneseq/AA2000.DAT:*
- 22: /SIDSB/gcgdata/geneseq/geneseq/AA2001.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	350	100.0	350	20	AAV30519
2	350	100.0	350	20	AAV22321
3	350	100.0	350	21	AAV97145
4	350	100.0	350	22	AAV97577
5	350	100.0	419	20	AAV30518
6	350	100.0	419	20	AAV22320
7	350	100.0	419	21	AAV97144
8	350	100.0	419	22	AAV97570
9	344	98.3	399	20	AAW86237
10	344	98.3	419	18	AAW17837
11	344	98.3	419	18	AAW00932

12	344	98.3	419	19	AAW75740	Human vascular end
13	344	98.3	419	20	AAW86203	Human vascular end
14	344	98.3	419	21	AAW10648	Human VEGF-C protein
15	344	98.3	419	21	AAW29048	Human VEGF-C prote
16	344	98.3	419	21	AAW70749	Human prepro-vascu
17	344	98.3	419	21	AAW70982	Human vascular end
18	344	98.3	419	22	AAW37605	Human VEGF-C. Hom
19	312	89.1	318	20	AAW08284	Human growth facto
20	309	88.3	350	16	AAW82686	Vascular endotheli
21	301	86.0	307	20	AAW86222	Human VEGF-C trunc
22	299	85.4	419	18	AAW13833	Human vascular end
23	296	84.6	302	20	AAW86223	Human VEGF-C trunc
24	291	83.1	237	20	AAW86224	Human VEGF-C trunc
25	286	81.7	292	20	AAW86225	Human VEGF-C trunc
26	263	75.1	419	18	AAW11478	Human vascular end
27	257	73.4	419	19	AAW75751	Vascular endotheli
28	113	32.3	113	20	AAW08285	Human growth facto
29	68	19.4	415	18	AAW00933	Mouse Flt4 recepto
30	68	19.4	415	19	AAW75742	Mouse vascular end
31	31	8.9	418	18	AAW00934	Quail Flt4 recepto
32	31	8.9	418	19	AAW75743	Quail vascular end

ALIGNMENTS

RESULT	ID	AAV30519	standard; Protein; 350 AA.
1	XX	AAV30519:	
AC	XX	16-NOV-1999 (first entry)	
DT	XX		
DE	XX	A truncated vascular endothelial growth factor-2.	
KW	KW	Human vascular endothelial growth factor-2; VEGF-2;	
KW	KW	vascular endothelial cell growth; endothelial cell migration;	
KW	KW	angiogenesis; blood pressure; blood flow; immune system disorder;	
KW	KW	immune cell; cancer; autoimmune disorder; blood protein disorder;	
KW	KW	ataxia telangiectasia; common variable immunodeficiency;	
KW	KW	digestive syndrome; HIV infection; HTLV-BLV infection;	
KW	KW	leukocyte adhesion deficiency syndrome; lymphopenia;	
KW	KW	phagocyte bactericidal dysfunction; severe combined immunodeficiency;	
KW	KW	Wiskott-Aldrich disorder; anemia; thrombocytopenia; hemoglobinuria;	
KW	KW	allergy; asthma; allergic asthma.	
OS	XX	Homo sapiens.	
PN	XX	WO9946364-A1.	
PN	XX	16-SEP-1999.	
PD	XX		
PF	XX	10-MAR-1999; 99WO-US05021.	
PR	XX	13-MAR-1998; 98US-0042105.	
PR	XX	30-JUN-1998; 98US-0107997.	
XX	XX		
PA	XX	(HUMA-) HUMAN GENOME SCI INC.	
PI	XX	Rosen CA, Cao L, Hu J;	
PI	XX	WPI; 1999-551389/46.	
DR	XX	N-PDB; AA210524.	
DR	XX		
PT	XX	New human vascular endothelial growth factor-2, used for treating, e.g.	
PT	XX	immune disorders and cancers	
XX	XX		
PS	XX	Example 2; Fig 2A-D; 222pp; English.	
CC	XX	The present sequence represents a truncated, biologically active form	
CC	XX	of human vascular endothelial growth factor-2 (VEGF-2). The VEGF-2	
CC	XX	polypeptides have activities similar to VEGF. The VEGF-2 polypeptides	

CC stimulate the growth of vascular endothelial cells, stimulate endothelial
CC cell migration, stimulate angiogenesis, decrease blood pressure, and
CC increase blood flow. The polynucleotides and polypeptides can be used
CC for preventing, treating or ameliorating a medical condition. The
CC VEGF-2 polypeptides or polynucleotides may be useful in treating
CC deficiencies or disorders of the immune system, by activating or
CC inhibiting the proliferation, differentiation, or mobilization
CC (chemotaxis) of immune cells. The etiology of these immune deficiencies
CC or disorders may be genetic, somatic, such as cancer or some autoimmune
CC disorders, acquired (e.g. by chemotherapy or toxins), or infectious.
CC Examples of immunologic deficiency syndromes include blood protein
CC disorders, ataxia telangiectasia, common variable immunodeficiency,
CC DiGeorge syndrome, HIV infection, HTLV-BLV infection, leukocyte adhesion
CC deficiency syndrome, lymphopenia, phagocyte bactericidal dysfunction,
CC severe combined immunodeficiency (SCIDS), Wiskott-Aldrich disorder,
CC anemia, thrombocytopenia, or hemoglobinuria. They can also be used to
CC modulate eumostatic or thrombolytic activity. Similarly allergic reactions
CC and conditions such as asthma (particularly allergic asthma) or other
CC respiratory problems, may also be treated.

SQ Sequence 350 AA:

Query Match 100.0%; Score 350; DB 20; Length 350;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 350; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MVLVPEYKMYKCOLRKRGQWQHNRQANLNSRTEETIKFAAHYNTLTKSIDNWRKT 60
DB 1 MVLVPEYKMYKCOLRKRGQWQHNRQANLNSRTEETIKFAAHYNTLTKSIDNWRKT 60
QY 61 QCMPEVCIIDVCKEFEGVANTFEKPPCVSVYRGGCCNSEGLQCMNTSTSYLSKTLFEIT 120
DB 61 QCMPEVCIIDVCKEFEGVANTFEKPPCVSVYRGGCCNSEGLQCMNTSTSYLSKTLFEIT 120
QY 121 VPLSGPRKPVTTISFANHSCRCMSKIDVYRQVHSITRSLPATLPQCAANKTCPTNYKW 180
DB 121 VPLSGPRKPVTTISFANHSCRCMSKIDVYRQVHSITRSLPATLPQCAANKTCPTNYKW 180
QY 181 NNHICICLAQEDPFMFSSDAGDDSTDSGFHDICGNKELDETCQCVRAILRASCSPHKE 240
DB 181 NNHICICLAQEDPFMFSSDAGDDSTDSGFHDICGNKELDETCQCVRAILRASCSPHKE 240
QY 241 LDRNSCQCVCKNNLFPSCGAGNREFEDNTCCQVCKRTCPRNOLPANGKACACCTESPOKC 300
DB 241 LDRNSCQCVCKNNLFPSCGAGNREFEDNTCCQVCKRTCPRNOLPANGKACACCTESPOKC 300
QY 301 LKGGKFFHHQTCSCYRRPCTNRQACBPFGFSYSEVCGRCVPSYWRPONS 350
DB 301 LKGGKFFHHQTCSCYRRPCTNRQACBPFGFSYSEVCGRCVPSYWRPONS 350

RESULT 2

ID AAY22321 standard; Protein; 350 AA.

AC AAY22321;

DT 22-SEP-1999 (first entry)

DE Truncated human VEGF2 protein sequence.

XX VEGF2; vascular endothelial growth factor 2; angiogenesis; bone damage;
KW endothelial cell proliferation; tissue damage; therapy.

OS Homo sapiens.

XX USS932540-A.

XX 03-AUG-1999.

XX 24-DEC-1997; 97US-0999811.

PR 24-DEC-1997; 97US-0999811.
PR 08-MAR-1994; 94US-0207550.
PR 06-JUN-1995; 95US-0465968.
XX (HUMA-) HUMAN GENOME SCT INC.
PA Cao L, Hu J, Rosen CA;
PI WPI: 1999-443606/37.
DR N-PSDB: AAX84838.
XX Vascular endothelial growth factor 2 for wound healing and vascular
PT repair
PS Claim 1: Fig 2; 49pp: English.
XX This sequence is the vascular endothelial growth factor 2 (VEGF2),
CC of the invention. The isolated polypeptide is useful for stimulating
CC angiogenesis, by promoting the proliferation of endothelial cells, for
CC the treatment of a wound, or for the treatment of tissue or bone damage.

SQ Sequence 350 AA:

Query Match 100.0%; Score 350; DB 20; Length 350;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 350; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MVLVPEYKMYKCOLRKRGQWQHNRQANLNSRTEETIKFAAHYNTLTKSIDNWRKT 60
DB 1 MVLVPEYKMYKCOLRKRGQWQHNRQANLNSRTEETIKFAAHYNTLTKSIDNWRKT 60
QY 61 QCMPEVCIIDVCKEFEGVANTFEKPPCVSVYRGGCCNSEGLQCMNTSTSYLSKTLFEIT 120
DB 61 QCMPEVCIIDVCKEFEGVANTFEKPPCVSVYRGGCCNSEGLQCMNTSTSYLSKTLFEIT 120
QY 121 VPLSGPRKPVTTISFANHSCRCMSKIDVYRQVHSITRSLPATLPQCAANKTCPTNYKW 180
DB 121 VPLSGPRKPVTTISFANHSCRCMSKIDVYRQVHSITRSLPATLPQCAANKTCPTNYKW 180
QY 181 NNHICICLAQEDPFMFSSDAGDDSTDSGFHDICGNKELDETCQCVRAILRASCSPHKE 240
DB 181 NNHICICLAQEDPFMFSSDAGDDSTDSGFHDICGNKELDETCQCVRAILRASCSPHKE 240
QY 241 LDRNSCQCVCKNNLFPSCGAGNREFEDNTCCQVCKRTCPRNOLPANGKACACCTESPOKC 300
DB 241 LDRNSCQCVCKNNLFPSCGAGNREFEDNTCCQVCKRTCPRNOLPANGKACACCTESPOKC 300
QY 301 LKGGKFFHHQTCSCYRRPCTNRQACBPFGFSYSEVCGRCVPSYWRPONS 350
DB 301 LKGGKFFHHQTCSCYRRPCTNRQACBPFGFSYSEVCGRCVPSYWRPONS 350

RESULT 3

ID AAY97145 standard; Protein; 350 AA.

AC AAY97145;

DT 22-DEC-2000 (first entry)

DE Truncated vascular endothelial growth factor-2 (VEGF-2).

XX Vascular endothelial growth factor 2; VEGF-2; retina; angiogenesis;

KW treatment; injury; degeneration; photoreceptors; eye;

XX age-related macular degeneration; diabetic retinopathy.

XX Homo sapiens.

XX WO200045835-A1.

XX 10-AUG-2000.

XX 07-FEB-2000: 2000MO-US03047.
 PF
 XX
 PR 08-FEB-1999: 99US-0119179.
 PR 12-FEB-1999: 99US-0119926.
 PR 03-JUN-1999: 99US-0137796.
 PR 22-DEC-1999: 99US-0171505.
 XX
 PA (HUMA-) HUMAN GENOME SCI INC.
 PI Rosen CA, Alderson R, Meider R, Roschke V, Ruben SM.
 XX
 DR WPI: 2000-532862/48.
 DR N-PSDB: AAA52081.
 XX
 PT Treating injury or degeneration of photoreceptors comprises
 PT administering to a subject vascular endothelial growth factor 2
 (VEGF-2)
 XX
 PS Claim 4: Fig 2a-d: 252pp: English.
 XX
 CC Administration of vascular endothelial growth factor 2 (VEGF-2)
 CC to a patient can be used for treating injury or degeneration of
 CC photoreceptors associated with e.g. angiod streaks, retinitis
 CC pigmentosa, age-related macular degeneration, diabetic retinopathy,
 CC etc. VEGF-2 promotes angiogenesis, the formation of new blood
 CC vessels in the retina.
 XX
 SQ Sequence 350 AA:

Query Match 100.0%; Score 350; DB 21; Length 350;
 Best Local Similarity 100.0%; Pred. No. 0;
 Matches 350; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 1 MTLVPEYMWKMYKCOLRKGMQHNRQANLSRTEETIKFAAHYMTIELKSIDNEMRKT 60
 Db 1 mtlvpeymwkmkqqlrkqgwmnreganlnsteeitikaahyntellksidnwmrk 60
 QY 61 QCMPEYCIDVGEKFGVATNTFFKPCVSVYRCGGCNSGLCCMNTSTSYLSKTLFEIT 120
 Db 61 qcmpevcidvgekfgyatntffkpcvsvyrcggcnsqglcmntstyslklfelft 120
 QY 121 VPLSOGKPYTISFANTSCRCMSKLDVYRQVHSITRSLPATLPQCOANKTCPTNYMW 180
 Db 121 vplsgpkyptisfantscrmskldvyrvhsitrsilpatlpqqaanktcptnymw 180
 QY 181 NNHICRLAQEDFMFSSDAGDSDTDGFHDICGPNKLEDEETCCVCYCRAGLRPASCGRPHE 240
 Db 181 nnhicrlaqedfmfssdagdsdtdgfhdlcgnpkeldeetccvcrcaglrpascgrphe 240
 QY 241 LDNRNSQCVCNKLRFPSQCGANREPDENTCOCYCKRTCPNQLPBGKACCECTESPQKC 300
 Db 241 ldnsqcvcnkrlfpscqganreidentcvcckrtcpnqlpbgkacectespqkc 300
 QY 301 LKGGKFFHQTSCYRPPCTNRKACPEFSYSEEVCRCPVSWQRPQMS 350
 Db 301 lkggkffhqtscyrppctnrkacepfsyseevcrvpswqrpqms 350

RESULT 4
 ID AAY97577 standard: Protein; 350 AA.
 XX AAY97577;
 AC
 XX
 DT 05-APR-2001 (first entry)
 XX
 DE Human VEGF-2 protein sequence.
 XX
 KW Human: angiogenic protein; wound healing; vascular tissue repair;
 KW peripheral arterial disease; critical limb ischaemia; coronary disease;
 KW angiogenesis; tumour; inflammation; diabetic retinopathy; psoriasis;

KM rheumatoid arthritis; autoimmune disease; allergy; cancer; therapy;
 KM infectious disease; neurodegeneration;
 KM vascular endothelial growth factor-2; VEGF-2.
 OS Homo sapiens.
 XX
 PN MO200075163-A1.
 XX
 PD 14-DEC-2000.
 XX
 PF 01-JUN-2000: 2000MO-US14925.
 XX
 PR 03-JUN-1999: 99US-0137796.
 XX
 PA (HUMA-) HUMAN GENOME SCI INC.
 PI Rosen CA, Ruben SM, Hu J, Cao L;
 XX
 DR WPI: 2001-071057/08.
 DR N-PSDB: AAA91010.
 XX
 PT New nucleic acid encoding angiogenic proteins, useful e.g. for
 PT promoting healing of wounds and treating peripheral arterial disease,
 PT critical limb ischaemia or coronary disease.
 XX
 PS Disclosure: Fig 2: 244pp: English.
 XX

This sequence is vascular endothelial growth factor-2 (VEGF-2),
 CC which is an angiogenic protein of the invention. The angiogenic proteins
 CC and the DNA sequences encoding them, are used to prevent, treat or
 CC ameliorate disease and to detect diseases, or susceptibility, by
 CC detecting mutations or the presence or amount of angiogenic protein
 CC expression. Particularly they are used to stimulate wound healing,
 CC growth of damaged bone and tissue, and for repair of vascular tissue,
 CC especially peripheral arterial disease, critical limb ischaemia or
 CC coronary disease. Antagonists of the sequences are used to inhibit
 CC angiogenesis in tumours and to treat inflammation (where associated with
 CC increased vascular permeability), diabetic retinopathy, rheumatoid
 CC arthritis or psoriasis. Agonists are also useful for stimulating
 CC (lymph)angiogenesis. The proteins are also used to identify specific
 CC binding agents (potential therapeutic agents) and to raise antibodies.
 CC The antibodies are useful as therapeutic (ant)agonists; for detection,
 CC purification and targeting of proteins for in vivo or in vitro diagnosis
 CC (including imaging) or for therapy (including when linked to e.g. a label
 CC or cytotoxin); and for immunotyping of cells, e.g. for detecting minimal
 CC residual disease or haematopoietic progenitor/stem cells. It is also
 CC contemplated that the sequences might be useful for treating a very wide
 CC range of other disorders, e.g. autoimmune diseases; allergy; cancer;
 CC infectious diseases (viral, bacterial, fungal or parasitic);
 CC neurodegeneration, also as chemotactic agents or for stimulating
 CC regeneration of the nervous system etc.
 XX
 SQ Sequence 350 AA:

Query Match 100.0%; Score 350; DB 22; Length 350;
 Best Local Similarity 100.0%; Pred. No. 0;
 Matches 350; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 1 MTLVPEYMWKMYKCOLRKGMQHNRQANLSRTEETIKFAAHYMTIELKSIDNEMRKT 60
 Db 1 mtlvpeymwkmkqqlrkqgwmnreganlnsteeitikaahyntellksidnwmrk 60
 QY 61 QCMPEYCIDVGEKFGVATNTFFKPCVSVYRCGGCNSGLCCMNTSTSYLSKTLFEIT 120
 Db 61 qcmpevcidvgekfgyatntffkpcvsvyrcggcnsqglcmntstyslklfelft 120
 QY 121 VPLSOGKPYTISFANTSCRCMSKLDVYRQVHSITRSLPATLPQCOANKTCPTNYMW 180
 Db 121 vplsgpkyptisfantscrmskldvyrvhsitrsilpatlpqqaanktcptnymw 180
 QY 181 NNHICRLAQEDFMFSSDAGDSDTDGFHDICGPNKLEDEETCCVCYCRAGLRPASCGRPHE 240
 Db 181 nnhicrlaqedfmfssdagdsdtdgfhdlcgnpkeldeetccvcrcaglrpascgrphe 240

Db	181	nmhircrlagedfimtfsdgdgddstidgfindigcpnkeldeetqcvcvcraglliprascophke	240
Qy	241	LDNRSCQCCCKNKLPEPQSGANREEDENTQCVCVKRTCPRNQPLNPGKACCECTESPQKC	300
Db	241	ldrnscqcccknklfpgsganreidentcgcvcvkrtcpnqplnpgkaccestespqkc	300
Qy	301	LLKGKFFHHQTQSCYRRPCTNMQKACEGFSISEVCRCVPSYTWORPQMS	350
Db	301	llkgkffhhqtscyrpctnrqkacepgfisyseevrcvpsytworpqms	350
RESULT 5			
ID	AA130518	standard; Protein; 419 AA.	
XX	AA130518;		
AC	AA130518;		
XX	AA130518;		
DT	16-NOV-1999	(first entry).	
DE	Vascular endothelial growth factor-2 (VEGF-2).		
XX			
KW	Human vascular endothelial growth factor-2; VEGF-2;		
KW	vascular endothelial cell growth; endothelial cell migration;		
KW	angiogenesis; blood pressure; blood flow; immune system disorder;		
KW	immune cell; cancer; autoimmune disorder; blood protein disorder;		
KW	ataxia telangiectasia; common variable immunodeficiency;		
KW	Digeorge syndrome; HIV infection; HTLV-BLV infection;		
KW	leukocyte adhesion deficiency syndrome; lymphopenia;		
KW	phagocyte bactericidal dysfunction; severe combined immunodeficiency;		
KW	Miskott-Aldrich disorder; anemia; thrombocytopenia; hemoglobinuria;		
XX	allergy; asthma; allergic asthma.		
XX			
OS	Homo sapiens.		
XX			
PN	MO5946364-A1.		
XX			
PD	16-SEP-1999.		
XX			
PF	10-MAR-1999; 99WO-US05021.		
XX			
PR	13-MAR-1998; 98US-0042105.		
PR	30-JUN-1998; 98US-0107997.		
PA	(HUMA-) HUMAN GENOME SCI INC.		
XX			
PI	Rosen CA, Cao L, Hu J;		
XX			
DR	WPI: 1999-551399/46.		
XX	N-PSDB; AN210523.		
PT	New human vascular endothelial growth factor-2, used for treating, e.g.		
XX	immune disorders and cancers		
XX			
PS	Claim 12; Fig 1A-E; 222pp; English.		
CC	The present sequence represents vascular endothelial growth factor-2		
CC	(VEGF-2). The VEGF-2 polypeptides have activities similar to VEGF. The		
CC	VEGF-2 polypeptides stimulate the growth of vascular endothelial cells,		
CC	stimulate endothelial cell migration, stimulate angiogenesis, decrease		
CC	blood pressure, and increase blood flow. The polynucleotides and		
CC	polypeptides can be used for preventing, treating or ameliorating a		
CC	medical condition. The VEGF-2 polypeptides or polynucleotides may be		
CC	useful in treating deficiencies or disorders of the immune system, by		
CC	activating or inhibiting the proliferation, differentiation, or		
CC	mobilization (chemotaxis) of immune cells. The etiology of these immune		
CC	deficiencies or disorders may be genetic, somatic, such as cancer or		
CC	some autoimmune disorders, acquired (e.g. by chemotherapy or toxins), or		
CC	infectious. Examples of immunologic deficiency syndromes include blood		
CC	protein disorders, ataxia telangiectasia, common variable		
CC	immunodeficiency, Digeorge syndrome, HIV infection, HTLV-BLV infection,		
CC	leukocyte adhesion deficiency syndrome, lymphopenia, phagocyte		
CC	bactericidal dysfunction, severe combined immunodeficiency (SCIDs),		
CC	Miskott-Aldrich disorder, anemia, thrombocytopenia, or hemoglobinuria.		

Query Match	100.0%	Score 350;	DB 20;	Length 419;
Best Local Similarity	100.0%;	Pred. No. 0;		
Matches 350;	Conservative 0;	Mismatches 0;	Indels 0;	Gaps
Qy 1	MNVLPKPEYWKWKCOLRKSGMHNREQANLNSPTEETKFAAHYNTETLKSIDNEWRKT	60		
Db 70	mvlylpeywkmykqqlrfgwqhmneganlnsteeeltkaahynteilksidnewrkt	129		
Qy 61	OCMPREVCIDNGKEKRGVATNFPEKPPCVSYVRCGCGCCNSEGLQCMNTSTSYLSKTLFEIT	120		
Db 130	qcmprvecltdyqkelgvgvntnlffppcvsyvrcgscnsegldqcmntstylsktlfeit	189		
Qy 121	VPLSGCPKPVITISFANHSTSCROMSKLDVYROYHSIIIRSLPATLPPQQAANKTCPTNYMW	180		
Db 190	vplsgpkrpvtisfanhstscromskldyrgvhsilrrslpatlpqqaanktcptnymw	249		
Qy 181	NNHITRCIAQDEPFMFSSDAGDSTDGFNDICGPKKELDEETCCQVCVCAGLRPASCGPHE	240		
Db 250	nnhitrciaqedfmsdagdstdgrndicgpkkeldeetccqvcvcaaglirpascgphk	309		
Qy 241	IDRNSCCQVCYKKNKLPPSCGANREFEDNTCCQVCCKRCPNROPINPCKACECTESPQK	300		
Db 310	ldrnsccqvcyknkllppscganrefedntccqvcckrtcpnropinpkacectespqk	369		
Qy 301	ILKGRKFHHQTCSCYRRPCTNRKQACBEGFSYSBEVRCVPSYWQRPOMS	350		
Db 370	llkgkrfhhqtcscyrrpctnrqkacepgrfayseevrcvpsywqrpoms	419		
RESULT 6				
AAV22320				
ID AAV22320	standard; Protein; 419 AA.			
XX AC	AAV22320;			
XX DT	22-SEP-1999 (first entry)			
XX DE	Full length human VEGF2 protein sequence.			
XX KM	VEGF2: vascular endothelial growth factor 2; angiogenesis; bone damage; endothelial cell proliferation; tissue damage; therapy.			
XX OS	Homo sapiens.			
XX PN	US5932540-A.			
XX PD	03-AUG-1999.			
XX PF	24-DEC-1997; 97US-0999811.			
XX PR	24-DEC-1997; 97US-0999811.			
XX PR	08-MAR-1994; 94US-0207550.			
XX PR	06-JUN-1995; 95US-0465968.			
XX PA	(HUMA-) HUMAN GENOME SCI INC.			
XX PI	Cao L, Hu J, Rosen CA;			
XX DR	WPI; 1999-443606/37.			
XX DR	N-PSDB; AAX84837.			
XX PT	Vascular endothelial growth factor 2 for wound healing and vascular repair			
XX PS	Claim 1; Fig 1; 49pp; English.			
XX				

CC This sequence is the vascular endothelial growth factor 2 (VEGF2),
CC of the invention. The isolated polypeptide is useful for stimulating
CC angiogenesis, by promoting the proliferation of endothelial cells, for
CC the treatment of a wound, or for the treatment of tissue or bone damage.

XX
SQ Sequence 419 AA:

Query Match 100.0%; Score 350; DB 20; Length 419;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 350; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MTVLPEYWKMYKCOLKRGQHNRBOANLSRTEETIKFAAAHYNTIELKSIDNEMRKT 60
DB 70 mtlvlypeywkmykcolkrgqwnhreganlnsteeetkfaaahyntelklsidnewrkt 129
QY 61 QCMREVCIDVGEFEGVATNTEFKPCVSVYRGCCNSBGLCMNTSTYLSKTFLEIT 120
DB 130 qcmrevcidvgkefgyvalntffkpcvsvyrgccnseglqcmntstyslktlfeit 189
QY 121 VPLSQGKPYTISFANHTSCRCMSKLDVYRQVHSIIRSLPATLPQCAANKTCPTNYMW 180
DB 190 vplsqgkpytisfanhtscrcmsklidyrgvhsliirslpatlpqcaanktcptnymw 249
QY 181 NNHICRLAQEDFMFSSDAGDSDTDFHDI CGPKKELDEETCQCVCRAGLRPA SCGPHE 240
DB 250 nnhicrlaqedfmfssdagdsdtdgfhdlcgpkkeldeetcqvcvraglirpascgphe 309
QY 241 LDRNSCQVCCKNKLFPSCGAGNREFDENTCQCVCRTCPRNQPLNPKKACECESPQKC 300
DB 310 ldrnscqvccknklfpscgagntefdentcqcvcrtcpnqplnpkccacecespqkc 369
QY 301 LKGGKRFHHQTCSCYRRPCTNRQACEPGFSYSEVCRVPSYWQRPQMS 350
DB 370 llkgkrfhhqtcscyrpctnrqacepgfsysevcrcvpsywqrpmqs 419

RESULT 7

ID AAY97144 standard; Protein: 419 AA.

XX AAY97144;

DT 22-DEC-2000 (first entry)

DE Vascular endothelial growth factor-2 (VEGF-2).

XX Vascular endothelial growth factor 2; VEGF-2; retina; angiogenesis;

KW treatment; injury; degeneration; photoreceptors; eye;

KW anglioid streaks; retinitis; pigmentosa; human;

KW age-related macular degeneration; diabetic retinopathy.

XX Homo sapiens.

OS Homo sapiens.

PN WO200045835-A1.

PD 10-AUG-2000.

PF 07-FEB-2000; 2000MO-US03047.

XX 08-FEB-1999; 99US-0119179.

PR 12-FEB-1999; 99US-0119926.

PR 03-JUN-1999; 99US-0137796.

PR 22-DEC-1999; 99US-0171505.

XX (HUMA-) HUMAN GENOME SCI INC.

PI Rosen CA, Alderson R, Melder R, Roschke V, Ruben SM;

XX WPI: 2000-532862/48.

DR N-PSDB; AAA52080.

XX Treating injury or degeneration of photoreceptors comprises

PT administering to a subject vascular endothelial growth factor 2
(VEGF-2)

PS Claim 31; Fig 1a-e; 252pp; English.

XX Administration of vascular endothelial growth factor 2 (VEGF-2)

CC to a patient can be used for treating injury or degeneration of

CC photoreceptors associated with e.g. anglioid streaks, retinitis

CC pigmentosa, age-related macular degeneration, diabetic retinopathy,

CC etc. VEGF-2 promotes angiogenesis, the formation of new blood

CC vessels in the retina.

XX

SQ Sequence 419 AA:

Query Match 100.0%; Score 350; DB 21; Length 419;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 350; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MTVLPEYWKMYKCOLKRGQHNRBOANLSRTEETIKFAAAHYNTIELKSIDNEMRKT 60
DB 70 mtlvlypeywkmykcolkrgqwnhreganlnsteeetkfaaahyntelklsidnewrkt 129
QY 61 QCMREVCIDVGEFEGVATNTEFKPCVSVYRGCCNSBGLCMNTSTYLSKTFLEIT 120
DB 130 qcmrevcidvgkefgyvalntffkpcvsvyrgccnseglqcmntstyslktlfeit 189
QY 121 VPLSQGKPYTISFANHTSCRCMSKLDVYRQVHSIIRSLPATLPQCAANKTCPTNYMW 180
DB 190 vplsqgkpytisfanhtscrcmsklidyrgvhsliirslpatlpqcaanktcptnymw 249
QY 181 NNHICRLAQEDFMFSSDAGDSDTDFHDI CGPKKELDEETCQCVCRAGLRPA SCGPHE 240
DB 250 nnhicrlaqedfmfssdagdsdtdgfhdlcgpkkeldeetcqvcvraglirpascgphe 309
QY 241 LDRNSCQVCCKNKLFPSCGAGNREFDENTCQCVCRTCPRNQPLNPKKACECESPQKC 300
DB 310 ldrnscqvccknklfpscgagntefdentcqcvcrtcpnqplnpkccacecespqkc 369
QY 301 LKGGKRFHHQTCSCYRRPCTNRQACEPGFSYSEVCRVPSYWQRPQMS 350
DB 370 llkgkrfhhqtcscyrpctnrqacepgfsysevcrcvpsywqrpmqs 419

RESULT 8

ID AAY97570 standard; Protein: 419 AA.

XX AAY97570;

DT 05-APR-2001 (first entry)

DE Human VEGF-B protein sequence.

XX Human; angiogenic protein; wound healing; vascular tissue repair;

KW peripheral arterial disease; critical limb ischaemia; coronary disease;

KW angiogenesis; tumour; inflammation; diabetic retinopathy; psoriasis;

KW rheumatoid arthritis; autoimmune disease; allergy; cancer; therapy;

KW infectious disease; neurodegeneration;

KW vascular endothelial growth factor-B; VEGF-B.

XX Homo sapiens.

OS Homo sapiens.

PN WO200075163-A1.

PD 14-DEC-2000.

PF 01-JUN-2000; 2000MO-US14925.

XX 03-JUN-1999; 99US-0137796.

XX (HUMA-) HUMAN GENOME SCI INC.

PI Rosen CA, Ruben SM, Hu J, Cao L;
 XX WPI: 2001-071057/08.
 DR N-PSDB: AAA91004.
 XX

PT New nucleic acid encoding angiogenic proteins, useful e.g. for
 PT promoting healing of wounds and treating peripheral arterial disease,
 PT critical limb ischaemia or coronary disease -

Claim 11; Fig 1; 244pp; English.

CC This sequence is vascular endothelial growth factor-B (VEGF-B),
 CC which is an angiogenic protein of the invention. The angiogenic proteins
 CC and the DNA sequences encoding them, are used to prevent, treat or
 CC ameliorate disease and to detect diseases, or susceptibility, by
 CC detecting mutations or the presence or amount of angiogenic protein
 CC expression. Particularly they are used to stimulate wound healing,
 CC growth of damaged bone and tissue, and for repair of vascular tissue,
 CC especially peripheral arterial disease, critical limb ischaemia or
 CC coronary disease. Antagonists of the sequences are used to inhibit
 CC angiogenesis in tumours and to treat inflammation (where associated with
 CC increased vascular permeability), diabetic retinopathy, rheumatoid
 CC arthritis or psoriasis. Agonists are also useful for stimulating
 CC (lymph)angiogenesis. The proteins are also used to identify specific
 CC binding agents (potential therapeutic agents) and to raise antibodies.
 CC The antibodies are useful as therapeutic (ant)agonists; for detection,
 CC purification and targeting of proteins for in vivo or in vitro diagnosis
 CC (including imaging) or for therapy (including when linked to e.g. a label
 CC or cytotoxin); and for immunotyping of cells, e.g. for detecting minimal
 CC residual disease or haematopoietic progenitor/stem cells. It is also
 CC contemplated that the sequences might be useful for treating a very wide
 CC range of other disorders, e.g. autoimmune diseases; allergy; cancer;
 CC infectious diseases (viral, bacterial, fungal or parasitic);
 CC neurodegeneration, also as chemotactic agents or for stimulating
 CC regeneration of the nervous system etc.

XX Sequence 419 AA:

Query Match 100.0%; Score 350; DB 22; Length 419;
 Best Local Similarity 100.0%; Pred. No. 0;
 Matches 350; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MVLVPEYKMYKCOLRKGMQHNREQANLNSRTEETIKFAAAHYNTILKSIDNEWRKT 60
 DB |||||||
 QY 70 MVLVPEYKMYKCOLRKGMQHNREQANLNSRTEETIKFAAAHYNTILKSIDNEWRKT 129
 DB |||||||
 QY 61 GCMPEVCLDVCKEKGVAATNTEFFKPCVSVYRCGCCNSEGIGCMNTSYSLKTLFETT 120
 DB |||||||
 QY 130 GCMPEVCLDVCKEKGVAATNTEFFKPCVSVYRCGCCNSEGIGCMNTSYSLKTLFETT 189
 DB |||||||
 QY 121 VPLSGPKPVTLSFANHSCRCMSKLDVYROYHSIIRSLPRTLPOCOAANKTCPTNYMW 180
 DB |||||||
 QY 190 VPLSGPKPVTLSFANHSCRCMSKLDVYROYHSIIRSLPRTLPOCOAANKTCPTNYMW 249
 DB |||||||
 QY 181 NNHICRCLAQEDPMFSSDAGDSTGDFHDIICGPNKELDEETOCQVCRAGLRAPASGPHKE 240
 DB |||||||
 QY 230 NNHICRCLAQEDPMFSSDAGDSTGDFHDIICGPNKELDEETOCQVCRAGLRAPASGPHKE 309
 DB |||||||
 QY 241 IDRNSQCVCVKRLPSPGCGANREPDENTCQVCVKRTCPRNPLNGKACACCTESPOKC 300
 DB |||||||
 QY 310 IDRNSQCVCVKRLPSPGCGANREPDENTCQVCVKRTCPRNPLNGKACACCTESPOKC 369
 DB |||||||
 QY 301 LDKGRKFHHQTCSCYRRPCTNRQKACEPGFSYSEEVRCVPSYWPORPOMS 350
 DB |||||||
 QY 370 LDKGRKFHHQTCSCYRRPCTNRQKACEPGFSYSEEVRCVPSYWPORPOMS 419
 DB |||||||

RESULT 9
 AAM86237
 ID AAM86237 standard; protein: 399 AA.
 XX
 AC AAM86237;

XX 16-FEB-1999 (first entry)
 DT
 XX
 DE Human VEGF-C full length sequence.

XX VEGF: VRP; vascular endothelial growth factor; VEGF-related protein;
 KW recombinant; truncated; gene therapy; angiogenesis; cardiac ischaemia;
 KW coronary; collateral vessel development; cell growth; migration; heart;
 KW lower limb ischaemia; stroke; peripheral vascular disease; intestine;
 KW wound healing; skin; vascular permeability.

XX Homo sapiens.

XX W09849300-A2.

XX 05-NOV-1998.

XX 20-APR-1998; 98WO-US07801.

XX 25-APR-1997; 97US-0842984.

XX (COLL-) COLLATERAL THERAPEUTICS.

PI Bohlen P;

DR WPI: 1999-009426/01.

PT New truncated vascular endothelial growth factor-related protein
 PT subunits - lack part of the N-terminal sequence, used to stimulate
 PT angiogenesis, e.g. for treating heart disease and ischaemia

PS Claim 5; Fig 2D; 113pp; English.

CC The invention relates to truncated VRP (vascular endothelial growth
 CC factor (VEGF)-related protein) subunits that have at least one amino
 CC acid N-terminal to the first Cys of the core sequence deleted. Host
 CC cells transformed or transfected with expression vectors containing
 CC nucleic acids encoding the truncated VRP subunits are used to produce
 CC the truncated proteins recombinantly. The truncated VRP subunits,
 CC optionally expressed from gene therapy vectors, have in vivo and in vitro
 CC angiogenic activity and are used to stimulate angiogenesis, particularly
 CC coronary collateral vessel development in cases of cardiac ischaemia; to
 CC stimulate endothelial cell growth and migration in vitro; to treat heart
 CC disease; to treat ischaemia (e.g. cardiac, chronic coronary or chronic
 CC lower limb ischaemia; stroke and peripheral vascular disease); to promote
 CC healing of wounds (of skin or intestines), and to increase vascular
 CC permeability. Sequences AAM86234 to AAM86239 represent full length VRP
 CC sequences from which the truncated fragments are created.

XX Sequence 399 AA:

Query Match 98.3%; Score 344; DB 20; Length 399;
 Best Local Similarity 100.0%; Pred. No. 0;
 Matches 344; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MVLVPEYKMYKCOLRKGMQHNREQANLNSRTEETIKFAAAHYNTILKSIDNEWRKT 60
 DB |||||||
 QY 50 MVLVPEYKMYKCOLRKGMQHNREQANLNSRTEETIKFAAAHYNTILKSIDNEWRKT 109
 DB |||||||
 QY 61 GCMPEVCLDVCKEKGVAATNTEFFKPCVSVYRCGCCNSEGIGCMNTSYSLKTLFETT 120
 DB |||||||
 QY 110 GCMPEVCLDVCKEKGVAATNTEFFKPCVSVYRCGCCNSEGIGCMNTSYSLKTLFETT 169
 DB |||||||
 QY 121 VPLSGPKPVTLSFANHSCRCMSKLDVYROYHSIIRSLPRTLPOCOAANKTCPTNYMW 180
 DB |||||||
 QY 170 VPLSGPKPVTLSFANHSCRCMSKLDVYROYHSIIRSLPRTLPOCOAANKTCPTNYMW 229
 DB |||||||
 QY 181 NNHICRCLAQEDPMFSSDAGDSTGDFHDIICGPNKELDEETOCQVCRAGLRAPASGPHKE 240
 DB |||||||
 QY 230 NNHICRCLAQEDPMFSSDAGDSTGDFHDIICGPNKELDEETOCQVCRAGLRAPASGPHKE 289
 DB |||||||
 QY 241 IDRNSQCVCVKRLPSPGCGANREPDENTCQVCVKRTCPRNPLNGKACACCTESPOKC 300
 DB |||||||

Db	290	1ldmsgcvcnkhlfpscgcnreldentcgcvcckrtccprnplnpgkacacccespqk	344
Oy	301	LLKGRKFFHQTCSYRRPCTNRQKACPEGFSYSSEEVCRCPYSW	344
Db	350	llkgkfhqtcscyrpctnrqkacepgfsyseecrcpysw	393
RESULT 10			
AAAM17837	ID	AAAM17837 standard; Protein: 419 AA.	
AAAM17837;	AC		
13-JAN-1998	DT	(first entry)	
Human foetal liver kinase A binding protein flk-1bp.	DE		
Foetal liver kinase 1 binding protein; human; flk-1bp;	KW		
receptor tyrosine kinase; vasculogenesis; angiogenesis;	KW		
wound healing; tumour; therapy; antagonist; antibody.	KW		
Homo sapiens.	OS		
Key	XX	Location/Qualifiers	
Peptide	FT	1..20	
Protein	FT	/label= Sig-peptide	
Peptide	FT	21..419	
Peptide	FT	/label= Mat.protein	
Peptide	FT	/note= "(claim 10)"	
Peptide	FT	21..35	
Peptide	FT	/label= N-terminal	
Peptide	FT	/note= "(claim 3)"	
WO9717442-A1.	PN		
15-MAY-1997.	PD		
05-NOV-1996;	PF	96WO-US17584.	
08-NOV-1995;	PR	95US-0554374.	
(IMMV) IMMUNEX CORP.	XX		
Lyman SD;	PA		
WP1: 1997-281031/25.	PI		
N-PSDB: AAT68811.	PT		
DNA encoding a human foetal liver kinase 1 binding protein - used	XX		
to treat conditions with insufficient protein, deliver agents to	XX		
cells and identify antagonists to treat protein-mediated conditions	XX		
Claim 1; Page 30-32; 43pp; English.	XX		
This polypeptide comprises a human foetal liver kinase 1 binding	CC		
protein (flk-1bp) (see AAAM17837) that binds to the receptor tyrosine	CC		
kinase flk-1 expressed on vascular endothelial and other cells.	CC		
The mature flk1-bp can be secreted from host cells transformed with	CC		
an expression vector including an isolated flk-1bp cDNA clone (see	CC		
AAT68811). Flk-1bp can be used to isolate cells to which it binds,	CC		
for use in studying the roles of such cells and of flk-1 in	CC		
vasculogenesis and angiogenesis. Angiogenesis inhibition or	CC		
increased vascularisation may be clinically desirable (e.g. to	CC		
suppress solid tumour growth or in wound healing, respectively).	CC		
The flk-1bp can be administered to treat conditions with defective	CC		
or insufficient flk-1. Polypeptides may also act as carriers to	CC		
deliver diagnostic/therapeutic agents to cells to which flk1-bp	CC		
binds, to generate antibodies, and to identify flk-1bp antagonists	CC		
useful for treating flk-1bp mediated conditions.	CC		
Sequence 419 AA;	XX		

Query Match	Similarity	98.3%	Score 344	DB 18	Length 419
Best Local	Similarity	100.0%	Pred. No. 0		
Matches 344	Conservative	0	Mismatches	0	Indels
					Gaps
					0
QY	1	MTVLVPEYWKMYKCOLRKSGQMORNEQALNSRTEETIKFAAHYNTIELKSIDNEMRKT	60		
DB	70	mtvlvpeywkmykcolrksgqmornesrteetlkfaahyntelkksidnewrkt	129		
QY	61	QCMPEVDCIDVGEKFGVATNTEFFKPPCVSVYRCGGCCNSEGLQCMNTSTYLSKTLFEIT	120		
DB	130	qcmpevdcidvgekfvgvatnteffkppcvsvyrcggccnseglqcmntstyslsktlfeilt	189		
QY	121	VLDSGGPRVNTISFANHNTSCRCMSKLDYVROVHSTIRSLPATLPLQCAANNTCPNTYWM	180		
DB	190	vlldsgprvntisfanhntscrcmskldvyrvhstirslpatlpqcaanntcptntymwm	249		
QY	181	NNHIRCLAOEDFMFSSDAGDSTFGFPHDICPNKLEDEFTQCVCYCRAGLRASGCPHKE	240		
DB	250	nnhircclagedfmfssdagsdgsdtdgfindicgnkheldetqcvcrcaglrpscgphke	309		
QY	241	LDNRSCQVCYKNNKLFPSQCGANREFDENTQCVCYKRTCPRNPPLMPGKACCECTESPQK	300		
DB	310	ldnrscqvcyknklfpsqcganrefdentcgcvcykrctprnplmpgkaccestespqk	369		
QY	301	ILKGGKFNHQTCSYRRPCTNRQKACEPESFSSEVYCRVPSTYW	344		
DB	370	ilkgkfnhqtcsyrrpctnrqkacepfsfssevcrcvpsyw	413		
RESULT 11					
AAM00932					
ID	AAM00932 standard; Protein; 419 AA.				
XX	AAM00932;				
AC					
XX	10-NOV-1997 (first entry)				
DT					
XX					
DE	Human Flt4 receptor tyrosine kinase ligand VEGF-C.				
XX					
KM	VEGF-C; Flt4; receptor tyrosine kinase; VEGFR-3; human;				
KM	vascular endothelial growth factor receptor-3; ligand;				
KM	angiogenesis; wound healing; lymph vessel; lymphangioma;				
KM	cancer; metastasis; therapy; diagnosis; antibody; inhibitor.				
XX					
OS	Homo sapiens.				
XX					
FH	Key				
FT	Peptide				
FT	1..102				
FT	/label= prepro-peptide				
FT	32..227				
FT	/note= "preferred active fragment of VEGF-C,				
FT	retaining Flt4 ligand activity (Claim 15)"				
FT	103..217				
FT	/note= "preferred active fragment of VEGF-C,				
FT	retaining Flt4 ligand activity (Claim 12)"				
FT	103..225				
FT	/note= "preferred active fragment of VEGF-C,				
FT	retaining Flt4 ligand activity (Claim 13)"				
FT	103..227				
FT	/note= "preferred active fragment of VEGF-C,				
FT	retaining Flt4 ligand activity (Claim 14)"				
FT	113..213				
FT	/note= "preferred active fragment of VEGF-C,				
FT	retaining Flt4 ligand activity (Claim 10)"				
FT	113..227				
FT	/note= "preferred active fragment of VEGF-C,				
FT	retaining Flt4 ligand activity (Claim 11)"				

retaining Flt4 ligand activity (Claim 8)"

QY 181 NNHICRCLAOEDFMFSSDAGDDSTDFHDIICGPNKEIDETCOOCVCRAGLRPASCGRHKE 240
 Db 250 nmhlcrcclaqedfmfssdagddstldgfhdicgpnkeldetccqvcvcracrlrpscgphe 309
 QY 241 LDRNSCOCVCNNKLFPSOCGANREFDENTCOOCVKRTCPNPNOPKPGKACECTESPQKC 300
 Db 310 ldrnscgcvcnklfpqcganrefdentccqvcckrtcprnpnpgkacacetespqkc 369
 QY 301 LKGKRFHHOTGSCYRRPCTNRKACBPFSYSEVCRVPSYW 344
 Db 370 1lkqkfhqtcscyrtrpcnrqkacepgfsyseevcrvpsyw 413

RESULT 13

ID AAM86203 standard; protein: 419 AA.

XX AAM86203;

XX 16-FEB-1999 (first entry)

XX Human vascular endothelial growth factor (VEGF)-C sequence.

KM VEGF; VRP: vascular endothelial growth factor; VEGF-related protein;
 KM recombinant; truncated: gene therapy; angiogenesis; cardiac ischemia;
 KM coronary; collateral vessel development; cell growth; migration; heart;
 KM lower limb ischemia; stroke; peripheral vascular disease; intestine;
 KM wound healing; skin; vascular permeability.

OS Homo sapiens.

XX MO9849300-A2.

XX 05-NOV-1998.

XX 20-APR-1998: 98WO-US07801.

XX 25-APR-1997: 97US-0842984.

XX (COLL-) COLLATERAL THERAPEUTICS.

XX Bohlen P;

XX WPI: 1999-009426/01.

PT New truncated vascular endothelial growth factor-related protein
 subunits - lack part of the N-terminal sequence, used to stimulate
 angiogenesis, e.g. for treating heart disease and ischemia

PS Disclosure: Fig 1, 113pp: English.

XX This represents the amino acid sequence of human vascular endothelial
 CC growth factor (VEGF)-C protein. The invention provides truncated VRP
 CC (VEGF-related protein) subunits that have at least one amino acid
 CC N-terminal to the first Cys of the core sequence deleted. Host cells
 CC transfected or transfected with expression vectors containing nucleic
 CC acids encoding the truncated VRP subunits are used to produce the
 CC truncated proteins recombinantly. The truncated VRP subunits, optionally
 CC expressed from gene therapy vectors, have in vivo and in vitro angiogenic
 CC activity and are used to stimulate angiogenesis, particularly coronary
 CC collateral vessel development in cases of cardiac ischemia; to stimulate
 CC endothelial cell growth and migration in vitro; to treat heart disease;
 CC to treat ischemia (e.g. cardiac, chronic coronary or chronic lower limb
 CC ischemia; stroke and peripheral vascular disease); to promote healing of
 CC wounds (of skin or intestines), and to increase vascular permeability.

XX Sequence 419 AA;

Query Match 98.3%; Score 344; DB 20; Length 119;
 Best local similarity 100.0%; Pred. No. 0;
 Matches 344; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MTVLYPEYWMKMKCOLRKGCWQHNREOANLSRTEETIKFAAHYNTIELKSIDENKRT 60
 Db 70 mtylpeywmkmycqrlrk9gwmhreqanlnsrteetlikfaahyntellksidnewrk 129
 QY 61 QCMPREVCIOVGKEFGVATMFFKPPCVSVYRCGGCNSGLOCMNTSYLSLTFEIT 120
 Db 130 qcmprcvicdvkxfgvavtntffkppcvsvyrcggcnsqigmntstyslsltfelt 189
 QY 121 VPLSQGPKPTVTSFANHTSCRCMSKLDVYRQVHSIIRSLPATLPQCAANKTPTNYMW 180
 Db 190 vplsqqpkpvtlsfiantbsrcmskldvyrvqhsilrrslpatlpqqaanktptnywm 249
 QY 181 NNHICRCLAOEDFMFSSDAGDDSTDFHDIICGPNKEIDETCOOCVCRAGLRPASCGRHKE 240
 Db 250 nmhlcrcclaqedfmfssdagddstldgfhdicgpnkeldetccqvcvcracrlrpscgphe 309
 QY 241 LDRNSCOCVCNNKLFPSOCGANREFDENTCOOCVKRTCPNPNOPKPGKACECTESPQKC 300
 Db 310 ldrnscgcvcnklfpqcganrefdentccqvcckrtcprnpnpgkacacetespqkc 369
 QY 301 LKGKRFHHOTGSCYRRPCTNRKACBPFSYSEVCRVPSYW 344
 Db 370 1lkqkfhqtcscyrtrpcnrqkacepgfsyseevcrvpsyw 413

RESULT 14

ID AAB10648 standard; Protein: 419 AA.

XX AAB10648;

XX 19-JUN-2001 (first entry)

XX Human VEGC protein.

KM VEGF-X: vascular endothelial growth factor; human; vulnery; cyrostatic;
 KM antirheumatic; antiarthritic; antipsoriatic; antidiabetic; treatment;
 KM angiogenesis regulator; vascularization regulator; cancer; psoriasis;
 KM rheumatoid arthritis; diabetic retinopathy; blood vessel; organ repair;
 KM tissue regeneration; tissue repair; wound; dermal ulcer; pressure sore;
 KM venous sore; diabetic ulcer; burns; skin graft growth; VEGC.

OS Homo sapiens.

XX WO200037641-A2.

XX 29-JUN-2000.

XX 21-DEC-1999: 99WO-US30503.

XX 22-DEC-1998: 98GB-0028377.

XX 18-MAR-1999: 99US-0124967.

XX 08-NOV-1999: 99US-0164131.

XX (JANC) JANSSEN PHARM NV.

PI Gordon RD, Sprengel JJ, Yon JR, Dijkmans JH, Goslowska A;
 PI Dhanaaraj SN, Xu J;

XX WPI: 2000-442669/38.

PT New vascular endothelial growth factor protein, useful for treating or
 preventing diseases associated with inappropriate angiogenesis activity
 PT such as cancer, rheumatoid arthritis, psoriasis and wounds -

PS Disclosure: Fig 11; 127pp: English.

XX This invention describes a novel vascular endothelial growth factor-X
 CC (VEGF-X) protein (Ia) and its encoding polynucleotide (IIa) which has
 CC vulnery, cyrostatic, antirheumatic, antiarthritic, antipsoriatic and
 CC antidiabetic activity and acts as an angiogenesis and vascularization
 CC regulator. An antisense molecule of the invention is useful for treating
 CC or preventing cancer, rheumatoid arthritis, psoriasis and diabetic

CC retinopathy by inhibiting angiogenic activity or inappropriate
CC vascularization including formation and proliferation of new blood
CC vessels, growth and development of tissues, tissue regeneration and organ
CC and tissue repair in a subject. The products of the invention are useful
CC for preparing medicaments for treating wounds such as dermal ulcers,
CC pressure sores, venous sores, diabetic ulcers and burns and to promote
CC skin graft growth, tissue repair, proliferation of new blood vessels,
CC tissue regeneration and organ repair by promoting angiogenic activity or
CC vascularization. This sequence represents the human VEGC protein used
CC to illustrate the method of the invention.

XX
Sequence 419 AA:

Query Match 98.3%; Score 344; DB 21; Length 419;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 344; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MTVLPEYWKMYKCOLRKGGMOHNRQANLSRTEETIKFAAHYNTILKSIDNEWRT 60
DB mtlvlypeywkmykqllrkgywghnreganlnsrteetlkfaahyntelkksidnewrkt 129
QY 61 OCMPEVCIIDVKEKRGVANTPEFKPCVSVYRCGGCNSGEGLOCMNTSTSYLTKLFETT 120
DB |||||||||||||||||||||||||||||||||||||||||||||||||||||||||| 130
qcmpevciidvkefgyvalntlfkppcvsvyrcggcnssegigcmntstsyyltklfeitt 189
QY 121 VPLSGPKPVTISFANHNSCRCMSKLDVYRQVHSIIRSLPRTLPOCOANAKTCPTNYWM 180
DB |||||||||||||||||||||||||||||||||||||||||||||||||||||||||| 190
vplsgpkpvtisfanhtscrcmskldvyrgvhsilrrslpctlpqcgaaanktcptnywm 249
QY 181 NNHICRCLAQEDFMSSDAGDSDTGFDHICGPNKELDEBTCQVCVRAGLRASCGPHKE 240
DB |||||||||||||||||||||||||||||||||||||||||||||||||||||||||| 250
nnhlicrclaqedfmssdagdsdtdgfdhlcgpnkeldeeltcvcvraglrpsacgphke 309
QY 241 LDRNSCOCVCKNKLFPSCOGANREFDENTCOCVCKRTCPRNOLPLPGKACCTESPQKC 300
DB |||||||||||||||||||||||||||||||||||||||||||||||||||||||||| 310
ldrnscocvcknkflpscoganrefdentcgcvcckrtcpnplnpgkacectespqkc 369
QY 301 LKGRKFFHHQTCSCYRRPCTNRQKACEPGFSYSEEVCRCPSPYW 344
DB |||||||||||||||||||||||||||||||||||||||||||||||||||||||||| 370
llkgkffhqtcsyrrpctnrqkacepgfsyseevcrpcpsyw 413

RESULT 15

AAB29048
ID AAB29048 standard; Protein; 419 AA.

AC AAB29048;

XX 31-JAN-2001 (first entry)

XX Human VEGF-C protein sequence.

XX Human: Flt4; fms-like tyrosine kinase 4; lymphoedema;
KW vascular endothelial growth factor receptor 3; VEGFR-3;
KW Milroy-Nonne syndrome; lymphoedema praecox; VEGF-C;
KW vascular endothelial growth factor C.

XX Homo sapiens.

XX MO200058511-A1.

XX 05-OCT-2000.

XX 26-MAR-1999; 99WO-US06133.

XX 26-MAR-1999; 99WO-US06133.

XX (LUDM-) LUDMIG INST CANCER RES.

PA (UYHE-) UNIV HELSINKI LICENSING LTD OY.

XX (UYPI-) UNIV PITTSBURGH.

PI Ferrell RE, Altalo K, Finegold DN, Karkkainen M;

XX WPI; 2000-679298/66.
DR N-PSDB; AAC62406.

XX Screening a human subject for increased risk of developing a lymphatic
PT disorder, comprises assaying a nucleic acid to determine a mutation
PT altering the sequence of a vascular endothelial growth factor
PT receptor-3 -

XX Disclosure; Page 60-61; 76pp; English.

XX The present sequence is the protein sequence for the human vascular
CC endothelial growth factor C (VEGF-C). It was used to demonstrate the
CC methods of the invention, which involve the screening of individuals to
CC determine which vascular endothelial growth factor receptor 3 (VEGFR-3,
CC also known as Flt4 or fms-like tyrosine kinase 4) alleles they possess
CC and thus their likelihood of developing hereditary lymphoedema.
CC Conditions associated with lymphoedema include Milroy-Nonne syndrome,
CC which is early onset lymphoedema and lymphoedema praecox, which is late
CC onset.

SO Sequence 419 AA:

Query Match 98.3%; Score 344; DB 21; Length 419;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 344; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MTVLPEYWKMYKCOLRKGGMOHNRQANLSRTEETIKFAAHYNTILKSIDNEWRT 60
DB mtlvlypeywkmykqllrkgywghnreganlnsrteetlkfaahyntelkksidnewrkt 129
QY 61 OCMPEVCIIDVKEKRGVANTPEFKPCVSVYRCGGCNSGEGLOCMNTSTSYLTKLFETT 120
DB |||||||||||||||||||||||||||||||||||||||||||||||||||||||||| 130
qcmpevciidvkefgyvalntlfkppcvsvyrcggcnssegigcmntstsyyltklfeitt 189
QY 121 VPLSGPKPVTISFANHNSCRCMSKLDVYRQVHSIIRSLPRTLPOCOANAKTCPTNYWM 180
DB |||||||||||||||||||||||||||||||||||||||||||||||||||||||||| 190
vplsgpkpvtisfanhtscrcmskldvyrgvhsilrrslpctlpqcgaaanktcptnywm 249
QY 181 NNHICRCLAQEDFMSSDAGDSDTGFDHICGPNKELDEBTCQVCVRAGLRASCGPHKE 240
DB |||||||||||||||||||||||||||||||||||||||||||||||||||||||||| 250
nnhlicrclaqedfmssdagdsdtdgfdhlcgpnkeldeeltcvcvraglrpsacgphke 309
QY 241 LDRNSCOCVCKNKLFPSCOGANREFDENTCOCVCKRTCPRNOLPLPGKACCTESPQKC 300
DB |||||||||||||||||||||||||||||||||||||||||||||||||||||||||| 310
ldrnscocvcknkflpscoganrefdentcgcvcckrtcpnplnpgkacectespqkc 369
QY 301 LKGRKFFHHQTCSCYRRPCTNRQKACEPGFSYSEEVCRCPSPYW 344
DB |||||||||||||||||||||||||||||||||||||||||||||||||||||||||| 370
llkgkffhqtcsyrrpctnrqkacepgfsyseevcrpcpsyw 413

Search completed: November 15, 2001, 10:07:12
Job time: 44 sec

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: November 15, 2001, 10:07:43 ; Search time 25.79 seconds

(without alignments)
1033.776 Million cell updates/sec

Title: US-09-257-272-4

Perfect score: 350
Sequence: 1 MTVLPEYKMKYKQLRKGC.....SYSEVCKVPSYMPQMS 350Scoring table: OLIGO
Gapop 60.0 , Gapext 60.0

Searched: 219241 seqs, 76174552 residues

Word size : 30

Total number of hits satisfying chosen parameters: 1

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Listing first 45 summaries

Database :

PIR68:*
1: PIR1:*
2: PIR2:*
3: PIR3:*
4: PIR4:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	344	98.3	419	2 S69207	vascular endothel

ALIGNMENTS

RESULT 1
S69207
vascular endothelial growth factor C precursor - human
N:Alternate names: FLT4 ligand DHM
C:Species: Homo sapiens (man)
C>Date: 27-Apr-1996 #sequence.revision 01-Nov-1996 #text.change 08-Oct-1999
C:Accession: S69207; S61795; S71443; S69208; G02659
R:Joukov, V.; Pajusola, K.; Kaipainen, A.; Chillov, D.; Lahtinen, I.; Kukk, E.; Saksela, EMO J. 15, 1751, 1996
A:Title: Corrigendum: A novel vascular endothelial growth factor, VEGF-C, is a ligand for A:Reference number: S69207; MUID:96203094
A:Accession: S69207
A:Status: nucleic acid sequence not shown
A:Molecule type: mRNA
A:Residues: 1-419 <C00>
A:Cross-references: EMBL:X94216; NID:g1177488; PIDN:CAA63907.1; PID:e221096; PID:g118200
A:Note: the nucleotide sequence was submitted to the EMBL Data Library, December 1995
A:Note: only a part of the translation is shown
A:Note: this is a revision to the sequence from reference S61795
R:Joukov, V.; Pajusola, K.; Kaipainen, A.; Chillov, D.; Lahtinen, I.; Kukk, E.; Saksela, EMO J. 15, 290-298, 1996
A:Title: A novel vascular endothelial growth factor, VEGF-C, is a ligand for the Flt4 (V A:Reference number: S61795; MUID:96178224

A:Accession: S61795
A:Status: nucleic acid sequence not shown; not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 70-419 <J0U1>
A:Note: this sequence has been revised in reference S69207
A:Accession: S71443
A:Molecule type: protein
A:Residues: 'X', 104-120 <J0U2>
R:Lee, J.; Gray, A.; Yuan, J.; Luo, S.M.; Avraham, H.; Wood, W.I.
submitted to the EMBL Data Library, December 1995
A:Description: Vascular endothelial growth factor related protein (VRP): A ligand and
A:Reference number: S69208
A:Accession: S69208
A:Molecule type: mRNA
A:Residues: 1-419 <LEE>
A:Cross-references: EMBL:U43142; NID:g1150988; PIDN:AAA85214.1; PID:g1150989
R:Morris, J.C.
submitted to the EMBL Data Library, May 1996
A:Reference number: H01557
A:Accession: G02659
A:Status: preliminary; translated from GB/EMBL/DDBJ
A:Molecule type: mRNA
A:Residues: 1-419 <MOR>
A:Cross-references: EMBL:U58111; NID:g1373426; PIDN:AA02909.1; PID:g1373427
C:Genetics:
A:Gene: GDB:VEGFC; VRP
A:Cross-references: GDB:3890883; OMIM:601528
F:1-12/Domain: signal sequence #status predicted <Sig>
F:13-102/Domain: propeptide #status predicted <Pro>
F:103-419/Product: vascular endothelial growth factor C #status experimental <Mat>

Query Match 98.3%; Score 344; DB 2; Length 419;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 344; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 MTVLPEYKMKYKQLRKGC...HNRBOANLSRTEETIKRAAHYNTETILKSIDNEMRKT 60
DB 70 MTVLPEYKMKYKQLRKGC...HNRBOANLSRTEETIKRAAHYNTETILKSIDNEMRKT 129
QY 61 QCMPEVCIQVGEKFEVATNTFFKPCVSRYRCGGCCNSGLCCMNTSTYLSKTLFEIT 120
DB 130 QCMPEVCIQVGEKFEVATNTFFKPCVSRYRCGGCCNSGLCCMNTSTYLSKTLFEIT 189
QY 121 VPLSQGPKPTVTSFANHTSCRCMSKLDVYRQVHSIIRSLPATLPQCAANKTCPTNYMW 180
DB 190 VPLSQGPKPTVTSFANHTSCRCMSKLDVYRQVHSIIRSLPATLPQCAANKTCPTNYMW 249
QY 181 NNHICRCLAQEDFMFSSDAGDDSTDFHDCGPKKELDEETCCQVCRAGLRPASCGPHKE 240
DB 250 NNHICRCLAQEDFMFSSDAGDDSTDFHDCGPKKELDEETCCQVCRAGLRPASCGPHKE 309
QY 241 LDRNSCCVCKNKLFPSCCANREFDENTCQVCCKRTCPNPOLNPKGCACECTESPQKC 300
DB 310 LDRNSCCVCKNKLFPSCCANREFDENTCQVCCKRTCPNPOLNPKGCACECTESPQKC 369
QY 301 LLGKKRPHQTCSCYRRPCTNRQKACBPFGSYSEVCKVPSYMW 344
DB 370 LLGKKRPHQTCSCYRRPCTNRQKACBPFGSYSEVCKVPSYMW 413

Search completed: November 15, 2001, 10:07:43
Job time: 75 sec

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: November 15, 2001, 10:08:54 ; Search time 16.77 Seconds

(without alignments)
714.933 Million cell updates/sec

Title: US-09-257-272-4

Perfect score: 350

Sequence: 1 MVTLYPEYWKMYKCOLRKG.....SYSEVVCRCVPSYWPORPMS 350

Scoring table: OLIGO

Searched: 93435 seqs, 34255486 residues

Word size: 30

Total number of hits satisfying chosen parameters: 2

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Listing first 45 summaries

Database: SwissProt_39.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	344	98.3	419	1 VEGC_HUMAN	p49767 homo sapien
2	68	19.4	415	1 VEGC_MOUSE	p97953 mus musculi

ALIGNMENTS

Result	ID	VEGC_HUMAN	STANDARD	PRT	419 AA.
AC	p49767				
DT	01-OCT-1996 (Rel. 34, Created)				
DT	01-OCT-1996 (Rel. 34, Last sequence update)				
DT	01-OCT-2000 (Rel. 40, Last annotation update)				
DE	VASCULAR ENDOTHELIAL GROWTH FACTOR C PRECURSOR (VEGF-C) (VASCULAR				
DE	ENDOTHELIAL GROWTH FACTOR RELATED PROTEIN) (VRP) (FLT4 LIGAND) (FLT4-				
DE	L).				
GN	VEGFC.				
OS	Homo sapiens (Human).				
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;				
OC	Mammalia; Eutheria; Primates; Catarrhini; Hominoidea; Homo.				
OX	NCBI_TaxID=9606;				
RN	[1]				
RP	SEQUENCE FROM N.A., AND SEQUENCE OF 103-120.				
RX	MEDLINE=96178224; PubMed=8617204;				
RA	Joukov V., Pajusola K., Kaipainen A., Chillov D., Lahlainen I., Kuk E.,				
RA	Saksela O., Kalkkinen N., Alltalo K.;				
RT	"A novel vascular endothelial growth factor, VEGF-C, is a ligand for				
RL	the Flt4 (VEGFR-3) and KDR (VEGFR-2) receptor tyrosine kinases.";				
RL	EMBO J. 15:290-298(1996).				
RN	[2]				
RP	ERRATUM.				
RX	MEDLINE=96203094; PubMed=8612600;				

Query Match	Score	DB 1	Length	DB 2
Best local similarity	98.3%	100.0%	0	0
Matches	344	Conservative	0	Mismatches
			0	Indels
			0	Gaps
			0	
QY	1	MVTLYPEYWKMYKCOLRKGQWHRQANLNSRFEETIKFAAAYNTEILKSINDENRKT	60	
DB	70	MVTLYPEYWKMYKCOLRKGQWHRQANLNSRFEETIKFAAAYNTEILKSINDENRKT	129	
QY	61	QCMREVCIDGKEFGVATNFFKPCVSVYRCGCCNBSGLQCMNSTSYSLRLEIT	120	
DB	130	QCMREVCIDGKEFGVATNFFKPCVSVYRCGCCNBSGLQCMNSTSYSLRLEIT	189	
QY	121	VPLSOGKRPVYISFANHTSCRCMSKLDVYROYVSHIIRSLPATLPQCOANKTCPTNYMW	180	
DB	190	VPLSOGKRPVYISFANHTSCRCMSKLDVYROYVSHIIRSLPATLPQCOANKTCPTNYMW	249	

```

QY 181 NNHICRLAEDFMSSDAGDSTDFHIDICGPNKELDEETCCVCYRAGLRASCPHKE 240
DB 250 NNHICRLAEDFMSSDAGDSTDFHIDICGPNKELDEETCCVCYRAGLRASCPHKE 309
QY 241 LDRNSCQCCYCKNKLFPSSCGANREFEDNCCCKRTGCRNPLNGKACACETESPCK 300
DB 310 LDRNSCQCCYCKNKLFPSSCGANREFEDNCCCKRTGCRNPLNGKACACETESPCK 369
QY 301 LKGGKFFHQTSCYRRCPTNRKACEPGFSYSEEVCRCPVSYW 344
DB 370 LKGGKFFHQTSCYRRCPTNRKACEPGFSYSEEVCRCPVSYW 413

RESULT 2
VEGC_MOUSE STANDARD: PRT: 415 AA.
AC P97953:
DT 15-JUL-1998 (rel. 36, Created)
DT 15-JUL-1998 (rel. 36, Last sequence update)
DT 30-MAY-2000 (rel. 39, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR C PRECURSOR (VEGF-C) (FLT4 LIGAND)
DE (FLT4-L).
GN VEGFC.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-BALB/C.
RX MEDLINE=97164697; PubMed=9012504;
RA Kulk E., Lymboussaki A., Taira S., Kaipainen A., Jeltsch M.,
RA Joukov V., Allitalo K.;
RT "VEGF-C receptor binding and pattern of expression with VEGFR-3
RT suggests a role in lymphatic vascular development.";
RL Development 122:3829-3837(1996).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN-BALB/C.
RX MEDLINE=9738482; PubMed=9247316;
RA Fitz L.J., Morris J.C., Towler P., Long A., Burgess P., Greco R.,
RA Wang J., Gassaway R., Nickbarg E., Kovacic S., Charette A.,
RA Giannotti J., Finerty H., Zollner H., Beier D.R., Leak L.V.,
RA Turner K.J., Wood C.R.;
RT "Characterization of murine Flt4 ligand/VEGF-C.";
RL Oncogene 15:613-618(1997).
CC -!- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
CC CELL GROWTH.
CC -!- SUBUNIT: HOMODIMER, DISULFIDE-LINKED (BY SIMILARITY).
CC -!- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@sib-sib.ch).
CC -----
CC EMBL: U73620; AAC52984.1; -
CC EMBL: U58112; AAB46707.1; -
CC DR HSSP: P15692; 1VPF.
CC DR MGD: MGI:109124; Vegfc.
CC DR InterPro: IPR000072; -
CC DR InterPro: IPR002400; -
CC DR Pfam: PF00341; PDGF.1.
CC DR PRINTS: PR00438; GFCYSKNOT.
CC DR PROSITE: PS00249; PDGF_1; 1.
CC DR PROSITE: PS00278; PDGF_2; 1.
CC DR Mitogen: Growth factor; Glycoprotein; Signal: Repeat.
CC FT SIGNAL 1 ? 98 POTENTIAL.
CC FT PROPEP ? 98 POTENTIAL.

```

```

FT CHAIN 99 415 VASCULAR ENDOTHELIAL GROWTH FACTOR C.
FT DOMAIN 271 361 4 X 24 AA TANDEM REPEATS.
FT REPEAT 271 294 1.
FT REPEAT 295 318 2.
FT REPEAT 319 342 3.
FT REPEAT 343 361 4 (PARTIAL).
FT CARBOHYD 171 171 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 201 201 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 236 236 N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ SEQUENCE 415 AA; 46471 MW; D9D3DD3CECC659D6 CRC64;

```

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Query Match 19.4%; Score 68; DB 1; Length 415;
Best local Similarity 100.0%; Pred. No. 3.6e-64;
Matches 68; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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QY 111 YLSTLFEITVPLSGPKPVTTISFANHSCRCMSKLDVYROYHSITRSLPATLPCCQA 170
DB 176 YLSTLFEITVPLSGPKPVTTISFANHSCRCMSKLDVYROYHSITRSLPATLPCCQA 235
QY 171 NKTCPY 178
DB 236 NKTCPY 243

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Search completed: November 15, 2001, 10:08:54
Job time: 146 sec

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ID 057352      PRELIMINARY;      PRT:      418 AA.
AC 057352;
DT 01-JUN-1998 (TREMBlrel. 06, Created)
DT 01-JUN-1998 (TREMBlrel. 06, Last sequence update)
DT 01-MAR-2001 (TREMBlrel. 16, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR C PRECURSOR.
GN VEGF-C.
OS Colurnix coturnix japonica (Japanese quail).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC Colurnix.
OX NCBI_TaxID=93934;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=98167900; PubMed=9435294;
RA Eichmann A., Cordel C., Jafredo T., Breant V., Joukov V., Kumar V.,
RA Alltalo K., Le Douarin N.M.;
RT "Avian VEGF-C: cloning, embryonic expression pattern and stimulation
RT of the differentiation of VEGFR2-expressing endothelial cell
RT precursors.";
RL Development 125:743-752(1998).
DR EMBL; Y15837; CAA75799.1; -.
DR HSSP; P15692; 1VP.
DR InterPro; IPR000072; -.
DR InterPro; IPR002400; -.
DR Pfam; PF00341; PDGF_1.
DR PRINTS; PR00438; GFCSKNOT.
DR PRODOM; PD001629; -. 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
DR SMART; SM00141; PDGF; 1.
KW Signal.
FT SIGNAL.
FT CHAIN.
SQ SEQUENCE 418 AA; 46839 MW; 099BFCC79151BF2B CRC64;

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Query Match      8.9%; Score 31; DB 13; Length 418;
Best Local Similarity 100.0%; Pred. No. 1.4e-24;
Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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OY 133 SFANHTSCRCMSKLDVYRQVHSIIRSLPAT 163
   ||||||||||||||||||||||||||||
DB 201 SFANHTSCRCMSKLDVYRQVHSIIRSLPAT 231

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Search completed: November 15, 2001, 10:08:31
Job time: 123 sec

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